

Swarthmore College



CATALOGUE

1900-1901

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SWARTHMORE
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Author:
Swarthmore
college.
Title:
Catalogue

1. Main College Building.
2. Science Hall—Laboratories and Shops.
3. Meeting House.
4. Observatory and Professor's Residence.
5. West House—Professor's Residence.
6. President's House.
7. Gymnasium for Young Men.
8. Boiler Rooms and Laundry.
9. Whittier Field.
10. Gas House.
11. Farm House.
12. College Barn.
13. Swarthmore Station, P., W. & B.
C. R. R.
14. Water Works.
15. Filter.
16. Gardener's Cottage.
17. Somerville Hall—Gymnasium for
Young Women.

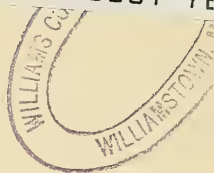


SWARTHMORE COLLEGE, BUILDINGS AND GROUNDS



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Thirty-second

Annual Catalogue

OF

Swarthmore College

Swarthmore, Pa.

1900 - 1901

PHILADELPHIA
FRANKLIN PRINTING COMPANY
514-520 LUDLOW STREET
1901

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Calendar

1900-1901

- 1900, Ninth Month, 20th, Fifth-day, College year began.
- 1901, Second Month 2d, Seventh-day, First Semester ends.
- “ Second Month, 4th, Second-day, Second Semester begins.
- “ Third Month, 12th, Third-day, Meeting of the Board of Managers.
- “ Third Month, 30th, Seventh-day, Spring Recess begins.
- “ Fourth Month, 9th, Third-day, College work resumed, 8.30 A. M.
- “ Fifth Month, 20th, Second-day, Senior Examinations begin.
- “ Fifth Month, 25th, Seventh-day, Senior Examinations completed.
- “ Sixth Month, 3d, Second-day, Final Examinations begin.
- “ Sixth Month, 7th, Sixth-day, } Examinations for Admission.
- “ Sixth Month, 8th, Seventh-day, }
- “ Sixth Month, 10th, Second-day, Meeting of the Board of Managers.
- “ Sixth Month, 10th, Second-day, Class-Day Exercises.
- “ Sixth Month, 11th, Third-day, COMMENCEMENT.
- “ Ninth Month, 17th, Third-day, Meeting of the Board of Managers.
- “ Ninth Month, 18th, Fourth-day, Examinations for Admission.
- “ Ninth Month, 19th, Fifth-day, College work begins, 8.30 A. M.
- “ Twelfth Month, 2d, Second-day, Meeting of the Board of Managers.
- “ Twelfth Month 3d, Third-day, *Annual Meeting of the Stockholders.*
- “ Twelfth Month 4th, Third-day, Meeting of the Board of Managers.
- “ Twelfth Month, 21st, Seventh-day, Winter Recess begins.
- 1902, First Month, 2d, Fifth-day, College work resumed, 8.30 A. M.

Corporation

OFFICERS

Clerks

ROBERT M. JANNEY,
112 Drexel Building, Philadelphia.

ABBY W. MILLER,
1203 Delaware Avenue, Wilmington.

Treasurer

ROBERT BIDDLE,
507 Commerce Street, Philadelphia.

Board of Managers

Term expires Twelfth Month, 1901

JOHN T. WILLETS.
303 Pearl Street, New York.

JANE P. DOWNING,
1613 Race St., Philadelphia.

CHARLES M. BIDDLE,
507 Commerce Street, Phila.

ELIZABETH B. PASSMORE,
Oxford, Pa.

DANIEL UNDERHILL,
Jericho, L. I.

JOANNA W. LIPPINCOTT,
Logan Station, Philadelphia.

EMMOR ROBERTS,
Fellowship, N. J.

MARIANNA S. RAWSON,
226 E. 16th Street, New York.

Term expires Twelfth Month, 1902

ISAAC H. CLOTHIER, Eighth & Market Sts, Phila.	FANNIE W. LOWTHORP, Trenton, N. J.
JAMES V. WATSON, 718 Franklin St., Philadelphia.	EDMUND WEBSTER, 1156 S. Broad St., Philadelphia.
HERMAN HOOPES, 506 Real Est. Trust Bldg., Phila.	EMMA McILVAIN COOPER, 715 Cooper Street, Camden, N. J.
ANNIE SHOEMAKER, Swarthmore, Pa.	REBECCA C. LONGSTRETH, Haverford, Pa.

Term expires Twelfth Month, 1903

JOSEPH WHARTON, P. O. Box 1332, Philadelphia.	WILLIAM M. JACKSON, 50 Beekman Street, New York.
MARY WILLETS, Sea Girt, N. J.	RACHEL W. HILLBORN, Swarthmore, Pa.
LYDIA H. HALL, Swarthmore, Pa.	EDWARD MARTIN, M.D., 415 S. 15th St., Philadelphia.
MARY C. CLOTHIER, Wynnewood, Pa.	ALBERT A. MERRITT, 37 Columbus Ave., New York.

Term expires Twelfth Month, 1904

EDWARD H. OGDEN, 314 Vine Street, Philadelphia.	EDWARD STABLER, JR., 6 South St., Baltimore, Md.
ELI M. LAMB, 1432 McCulloh St., Baltimore, Md.	HANNAH H. WOODNUTT, 1816 Arch Street, Philadelphia.
EMMA C. BANCROFT, Wilmington, Del.	HOWARD W. LIPPINCOTT, 509 Real Estate Trust Building, Philadelphia.
SUSAN W. LIPPINCOTT, Cinnaminson, N. J.	MARY W. ALBERTSON, Westbury Station, N. Y.

Officers and Committees of the Board

President

JOSEPH WHARTON.

Secretary

ABBY W. MILLER.

Auditors

HERMAN HOOPES,

JOHN T. WILLETS.

Executive

EMMOR ROBERTS,
ISAAC H. CLOTHIER,
EDWARD H. OGDEN,
EDMUND WEBSTER,
HOWARD W. LIPPINCOTT,
JOHN T. WILLETS,
CHARLES M. BIDDLE,
EDWARD MARTIN,
ROBERT M. JANNEY.

JANE P. DOWNING,
SUSAN W. LIPPINCOTT,
EMMA MCILVAIN COOPER,
HANNAH H. WOODNUTT,
MARY C. CLOTHIER,
ELIZABETH B. PASSMORE.
JOANNA W. LIPPINCOTT,
EMMA C. BANCROFT,
ABBY W. MILLER, *ex-officio*.

Finance

CHARLES M. BIDDLE,

JAMES V. WATSON,
ROBERT M. JANNEY.

Instruction

ABBY W. MILLER,
ANNIE SHOEMAKER,
EMMOR ROBERTS,
MARY WILLETS,
SUSAN W. LIPPINCOTT,
LYDIA H. HALL,

WILLIAM M. JACKSON,
RACHEL W. HILLBORN,
EDWARD MARTIN,
HOWARD W. LIPPINCOTT,
EDWARD STABLER, JR.,
MARIANNA S. RAWSON.

Building and Property

EDWARD H. OGDEN,
 EMMOR ROBERTS,
 JANE P. DOWNING,
 EDMUND WEBSTER,

RACHEL W. HILLBORN,
 HOWARD W. LIPPINCOTT,
 ROBERT M. JANNEY,
 JOHN T. WILLETS.

Museum and Laboratories

MARY WILLETS,
 ELI M. LAMB,

EDWARD MARTIN,
 MARY W. ALBERTSON,
 DANIEL UNDERHILL.

Friends' Historical Library

LYDIA H. HALL,
 EDWARD STABLER, JR.,

ISAAC H. CLOTHIER,
 REBECCA C. LONGSTRETH,
 ALBERT A. MERRITT.

Trusts, Endowments, and Scholarships

EDMUND WEBSTER,
 EDWARD H. OGDEN,
 EMMOR ROBERTS,

SUSAN W. LIPPINCOTT,
 JOHN T. WILLETS,
 EMMA C. BANCROFT, *Sec'y.*

Trustees of Endowed Professorships

ISAAC H. CLOTHIER,

EDWARD H. OGDEN,
 EMMOR ROBERTS.

Library

LYDIA H. HALL,
 RACHEL W. HILLBORN,

EDWARD STABLER, JR.,
 JOANNA W. LIPPINCOTT,
 ALBERT A. MERRITT.

Faculty*

1900—1901.

PRESIDENT WILLIAM W. BIRDSALL,
DEAN ELIZABETH POWELL BOND,
PROFESSOR EDWARD H. MAGILL,
† PROFESSOR WILLIAM HYDE APPLETON,
PROFESSOR SUSAN J. CUNNINGHAM,
† PROFESSOR WILLIAM C. DAY,
PROFESSOR FERRIS W. PRICE,
PROFESSOR GEORGE A. HOADLEY,
PROFESSOR SPENCER TROTTER,
‡ PROFESSOR MARIE A. K. HOADLEY,
PROFESSOR WILLIAM I. HULL,
PROFESSOR WILBUR M. STINE,
PROFESSOR JESSE H. HOLMES,
PROFESSOR T. ATKINSON JENKINS,
ASSISTANT PROFESSOR J. RUSSELL HAYES,
INSTRUCTOR BEATRICE MAGILL.

* "The President, Dean, and such of the resident Professors and others as may be elected by the Board, shall constitute the Faculty. They shall hold regular meetings, arrange the course of study, determine the qualifications for admission and for graduation, decide upon rules of order, and determine all questions pertaining to the discipline or instruction, subject to the approval of the Executive Committee, to whom they shall report monthly."—Corporation By-Law, No. 9.

† On leave of absence for the year.

‡ On leave of absence after Eleventh Month, 1900.

Officers and Standing Committees of the Faculty

President: WM. W. BIRDSALL, *ex officio*.

Secretary: Professor WM. I. HULL.

Library: Professors APPLETON, HAYES, JENKINS, STINE.

Diplomas and Commencement: Professors TROTTER, PRICE.

Students' Societies: Professors CUNNINGHAM, G. A. HOADLEY.

College Publications: Professors HAYES, STINE, Instructor
BEATRICE MAGILL.

Receptions: The President and The Dean.

Entrance Examinations: Professor PRICE and the Registrar.

Public Lectures: Professors M. A. K. HOADLEY, STINE.

Preparatory Schools: Professors MAGILL, M. A. K. HOADLEY,
CUNNINGHAM, PRICE.

Catalogue: Professors HULL, JENKINS.

Athletics: Professors G. A. HOADLEY, TROTTER.

Programme of Class-work: The President and the Registrar.

Adviser for Students in Arts: Professor PRICE.

Advisers for Students in Letters: Professors HULL, HAYES.

Adviser for Students in Science: Professor G. A. HOADLEY.

Adviser for Students in Engineering: Professor STINE.

Officers of Instruction and Administration*

WILLIAM W. BIRDSALL, A.M.,
President.

ELIZABETH POWELL BOND, A.M.,
Dean.

EDWARD H. MAGILL, A.M., LL.D.,
Emeritus Professor of the French Language and Literature, and
Lecturer on French Literature.

ARTHUR BEARDSLEY, C.E., Ph.D.,
Emeritus Professor of Engineering, and Librarian of Friends'
Historical Library.

† WILLIAM HYDE APPLETON, A.M., LL.B., Ph.D.,
Professor of Greek and of Early English.

SUSAN J. CUNNINGHAM, Sc.D.,
Edward H. Magill Professor of Mathematics and Astronomy.

† WILLIAM CATHCART DAY, Ph.D.,
Professor of Chemistry.

SPENCER TROTTER, M.D.,
Professor of Biology and Geology.

GEORGE A. HOADLEY, C.E., A.M.,
Professor of Physics.

FERRIS W. PRICE, A.M.,
Isaac H. Clothier Professor of the Latin Language and Literature.

MARIE A. K. HOADLEY, A.M.,
Professor of the German Language and Literature.

WILLIAM I. HULL, Ph.D.,
Joseph Wharton Professor of History and Political Economy.

WILBUR M. STINE, Ph.D.,
I. V. Williamson Professor of Engineering, and Director of the
Workshops.

JESSE H. HOLMES, Ph.D.,
Professor of History and Biblical Literature.

T. ATKINSON JENKINS, Ph.D.,
Professor of the French Language and Literature.

* Arranged with the exception of the President and Dean, in the order of appointment, and as Professors, Assistant Professors, etc.

† On leave of absence for the year.

- MYRTIE E. FURMAN, M.O.,
Assistant Professor in charge of Elocution.
- JOHN RUSSELL HAYES, A.B., LL.B.,
Assistant Professor of English.
- BENJAMIN F. BATTIN, Ph.D.,
Assistant Professor of German.
- GREGORY PAUL BAXTER, Ph.D.,
Assistant Professor of Chemistry.
- BEATRICE MAGILL,
Lecturer on the History of Painting, and Director of the Studio.
- EMILY G. HUNT, M.D.,
Lecturer on Physiology and Hygiene to the Young Women.
- ALICE M. ATKINSON, Ph.D.,
Assistant in Greek.
- JESSE I. BREWER, B.S.,
Assistant in Engineering, Shop Practice.
- THOMAS A. CLARK, C.E.,
Assistant in Mathematics and Engineering.
- GLENN L. SWIGGETT, A.M.,
Assistant in German.
- MARY V. MITCHELL GREEN, M.D.,
Director of Physical Training for Young Women.
- W. SINNOTT CUMMINGS, M.D.,
Director of Physical Training for Young Men.
- SARAH BROOKE FARQUHAR,
Instructor in Department of Physical Training.
- SARAH M. NOWELL,
Librarian.
- CHARLES A. BUNTING, B.S.,
Superintendent.
- ALBERT COOK MYERS, B.L.,
Registrar and Secretary to the President.

The Household

- | | |
|---|--|
| SARAH D. COALE,
Matron of West Wing. | ELLA MICHENER,
Matron of East Wing. |
| ELLEN ROBERTS,
Director of Laundry. | CAROLINE A. LUKENS,
Matron of Central Building. |
| MARY R. SATTERTHWAITE,
Housekeeper. | |

Students

SENIOR CLASS

Name	Course	Residence
EMILY M. ATKINSON,.....	<i>Arts</i> ,.....	McVeytown, Pa.
SUSAN E. ATKINSON,.....	<i>Letters</i> ,....	Earlington, Ky.
HENRY N. BENKERT,.....	<i>Engineering</i> ,	Morton, Pa.
FANNY B. CHEYNEY,.....	<i>Arts</i> ,.....	Media, Pa.
ELIZABETH DINSMORE,.....	<i>Letters</i> ,....	Philadelphia, Pa.
J. EDWARD DOWNING,.....	<i>Letters</i> ,....	East Norwich, N. Y.
EDITH G. ELMORE,.....	<i>Letters</i> ,....	Brooklyn, N. Y.
DEBORAH H. FERRIER,.....	<i>Science</i> ,....	Moorestown, N. J.
MAY K. FLANNERY,.....	<i>Letters</i> ,....	New York, N. Y.
PERCIVAL M. FOGG,.....	<i>Engineering</i> ,	Philadelphia, Pa.
GERTRUDE F. GILBERT,.....	<i>Letters</i> ,....	Flushing, N. Y.
T. WALTER GILKYSON,.....	<i>Arts</i> ,.....	Phoenixville, Pa.
ETHEL GRIEST,.....	<i>Letters</i> ,....	Reading, Pa.
W. LYNDON HESS,.....	<i>Letters</i> ,....	Camden, N. J.
ANNA B. HOWARD,.....	<i>Letters</i> ,....	Media, Pa.
EDITH H. JANNEY,.....	<i>Letters</i> ,....	Occoquan, Va.
ARTHUR H. JENKINS,.....	<i>Letters</i> ,....	Gwynedd, Pa.
AMY W. KNICKERBOCKER,..	<i>Letters</i> ,....	New Lenox, Ill.
MABEL W. LATIMER,.....	<i>Letters</i> ,....	Wilmington, Del.
MARY W. LIPPINCOTT,.....	<i>Letters</i> ,....	Riverton, N. J.
J. WARNER E. LOVE,.....	<i>Engineering</i> ,	Moorestown, N. J.
FRANK M. McVAUGH, JR.,..	<i>Science</i> ,....	Hockessin, Del.
MARTHA W. MOORE,.....	<i>Letters</i> ,....	Phoenixville, Pa.
J. WILMER PANCOAST,.....	<i>Science</i> ,....	Mickleton, N. J.
RICHARD PETERS, JR., ¹	<i>Engineering</i> ,	Philadelphia, Pa.
MARY B. RICHARDS,.....	<i>Letters</i> ,....	Toughkenamon, Pa.
L. WINIFRED ROGERS, ²	<i>Arts</i> ,.....	Corry, Pa.
G. ARTHUR SEAMAN,.....	<i>Arts</i> ,.....	Williamsport, Pa.
IRA SMEDLEY,.....	<i>Engineering</i> ,	Uwchlan, Pa.

¹ Is taking all the work of the Snelor Class, but has not yet (First Month, 1901) fulfilled the requirements for formal admission to it.

² Deborah Fisher Wharton Honor Scholar, 1900-1901.

Name	Course	Residence
T. ARTHUR SMITH,.....	<i>Engineering</i> ,	Philadelphia, Pa.
MARK THISTLETHWAITE,....	<i>Letters</i> ,	Richmond, Ind.
WILLIAM C. TYSON,.....	<i>Science</i> ,	Guernsey, Pa.
EDWARD WILLIAMS,.....	<i>Letters</i> ,	Holicong, Pa.
EDITH M. WINDER,.....	<i>Letters</i> ,	Richmond, Ind.
M. FLORENCE WYNN,.....	<i>Arts</i> ,	West Chester, Pa.
M. ALMA YOUNG,.....	<i>Arts</i> ,	Easton, Pa.

JUNIOR CLASS

Name	Course	Residence
M. IDA ALLEY,.....	<i>Science</i> ,	Lagrangeville, N. Y.
ELIZABETH A. ASHBURNER,.	<i>Arts</i> ,	Media, Pa.
ELIZABETH N. BAKER,.....	<i>Letters</i> ,	Coatesville, Pa.
S. ROSCOE BATEMAN,.....	<i>Science</i> ,	Glenloch, N. J.
ETHEL BEARDSLEY,.....	<i>Arts</i> ,	Swarthmore, Pa.
L. CARL BLADES,.....	<i>Engineering</i> ,	Elizabeth City, N. C.
EDITH COALE,.....	<i>Letters</i> ,	Riverton, N. J.
EDITH H. COOLEY,.....	<i>Arts</i> ,	Plainfield, N. J.
CHARLES C. CORSON,.....	<i>Science</i> ,	Plymouth Meet'g, Pa.
JAMES K. DAVIS,.....	<i>Letters</i> ,	Selin's Grove, Pa.
LINA B. DILLISTIN,.....	<i>Letters</i> ,	Paterson, N. J.
HELEN M. EASTWICK,.....	<i>Letters</i> ,	Philadelphia, Pa.
REBECCA M. ELY,.....	<i>Letters</i> ,	Philadelphia, Pa.
LEWIS FUSSELL,.....	<i>Science</i> ,	Media, Pa.
ERNEST L. GREEN,.....	<i>Arts</i> ,	Media, Pa.
GERTRUDE P. GRISCOM,....	<i>Letters</i> ,	Pottsville, Pa.
J. MILTON GRISCOM,.....	<i>Science</i> ,	Salem, N. J.
EDSON S. HARRIS, ¹	<i>Engineering</i> ,	Philadelphia, Pa.
MARY F. HAWKE,.....	<i>Arts</i> ,	Swarthmore, Pa.
AMELIA E. HIMES,	<i>Letters</i> ,	New Oxford, Pa.
ARTHUR G. HOADLEY,.....	<i>Science</i> ,	Swarthmore, Pa.
STELLA L. KOENIG,.....	<i>Letters</i> ,	Lewistown, Pa.
MARGARETTA W. LAMB,....	<i>Letters</i> ,	Baltimore, Md.
ALICE R. LINVILL,.....	<i>Letters</i> ,	Swarthmore, Pa.
MARION LUKENS,.....	<i>Letters</i> ,	Philadelphia, Pa.

¹ Samuel J. Underhill Honor Scholar, 1900-1901.

Name	Course	Residence
NATHAN H. MANNAKEE,....	<i>Science</i> ,....	Washington, D. C.
CYRUS D. MARTER,.....	<i>Letters</i> ,	Camden, N. J.
T. STOCKTON MATTHEWS,...	<i>Science</i> ,....	Baltimore, Md.
ROY McVAUGH,.....	<i>Letters</i> ,	Hockessin, Del.
ALLEN R. MITCHELL, JR.,...	<i>Letters</i> ,	Langhorne, Pa.
MARGARET M. PATTERSON,.	<i>Science</i> ,....	Philadelphia, Pa.
ANNA R. PAXSON,.....	<i>Letters</i> ,	Langhorne, Pa.
ROBERT L. PEARSON,.....	<i>Engineering</i> ,	Fern Rock, Pa.
FRANCES PRESTON,.....	<i>Letters</i> ,	Tayloria, Pa.
ELLWOOD RAMSEY, JR.,....	<i>Engineering</i> ,	Germantown, Pa.
ELLIOTT RICHARDSON,.....	<i>Engineering</i> ,	Torresdale, Pa.
HELEN W. SPEAKMAN,.....	<i>Arts</i> ,	Wilmington, Del.
ALICE P. TABOR,.....	<i>Letters</i> ,	Rochester, N. Y.
ERNEST J. TAYLOR,.....	<i>Engineering</i> ,	Nuttallburg, W. Va.
MARGARET H. TAYLOR,....	<i>Letters</i> ,	Woodstown, N. J.
ELMOR J. TEMPLE,	<i>Engineering</i> ,	Lionville, Pa.
CLARA M. THOMAS,.....	<i>Arts</i> ,	West Chester, Pa.
DEBORAH G. THOMAS,.....	<i>Letters</i> ,	Philadelphia, Pa.
WILLIAM W. TURNER,.....	<i>Letters</i> ,	Betterton, Md.
EDITH L. VERLENDEN,....	<i>Letters</i> ,	Darby, Pa.
ROBERT H. WALKER,.....	<i>Science</i> ,....	Baltimore, Md.
ANNA W. WATERS,.....	<i>Arts</i> ,	Stroudsburg, Pa.
MAUDE L. WATTERS,.....	<i>Arts</i> ,	Media, Pa.
ALBERT M. WILLIAMS,.....	<i>Engineering</i> ,	Holicong, Pa.
EDWARD H. WORTH,.....	<i>Engineering</i> ,	Coatesville, Pa.
IDA WRIGHT,.....	<i>Letters</i> ,	Brooklyn, N. Y.

SOPHOMORE CLASS

Name	Course	Residence
BYRON BEANS,.....	<i>Letters</i> ,	Hartsville, Pa.
WALKER M. BOND,.....	<i>Engineering</i> ,	Winchester, Va.
ELIZABETH M. BOOTH,.....	<i>Letters</i> ,	Chester, Pa.
FREDERIC C. BRINTON,.....	<i>Letters</i> ,	West Chester, Pa.
CAROLINE CLOTHIER,.....	<i>Letters</i> ,	Wynnewood, Pa.
WILLIAM J. CLOTHIER,....	<i>Arts</i> ,	Wynnewood, Pa.
EDMUND COCKS,.....	<i>Science</i> ,....	Cornwall, N. Y.
EDWARD N. G. DAVIS,.....	<i>Science</i> ,....	Newtown Square, Pa.

Name	Course	Residence
J. HORACE ERVIEN,.....	<i>Engineering</i> ,	Ogontz, Pa.
HOWARD S. EVANS,.....	<i>Engineering</i> ,	Morton, Pa.
MARION FARQUHAR,.....	<i>Letters</i> ,	Sandy Spring, Md.
MARGARET GLEIM,.....	<i>Science</i> ,	Lansdowne, Pa.
ALBERT P. HALL, JR.,.....	<i>Engineering</i> ,	West Chester, Pa.
EMMA F. HAMILTON,.....	<i>Letters</i> ,	Gladwyne, Pa.
WILLIAM E. HANNUM,.....	<i>Engineering</i> ,	Ward, Pa.
ANNIE S. HAWKE,.....	<i>Letters</i> ,	Swarthmore, Pa.
MABEL E. HOLLINSHEAD,...	<i>Science</i> ,	Moorestown, N. J.
JOHN HOWARD HOPKINS, ...	<i>Engineering</i> ,	Ruxton, Md.
HALLIE G. HULBURT,.....	<i>Letters</i> ,	Swarthmore, Pa.
ANNA MORRIS JACKSON,....	<i>Letters</i> ,	New York, N. Y.
ELIZABETH W. JACKSON,....	<i>Letters</i> ,	Bartville, Pa.
HERBERT E. JENKS,.....	<i>Engineering</i> ,	Byberry, Pa.
FRED. A. JOHNSON,.....	<i>Letters</i> ,	Emporium, Pa.
CARRIE B. KILGORE,.....	<i>Arts</i> ,	Philadelphia, Pa.
FANNIE B. KILGORE, ¹	<i>Arts</i> ,	Philadelphia, Pa.
ELSIE H. KOENIG,.....	<i>Letters</i> ,	Lewistown, Pa.
ROBERT E. LAMB,.....	<i>Engineering</i> ,	Baltimore, Md.
HELEN E. LEASE,.....	<i>Letters</i> ,	Salem, Ohio.
EDWARD R. MEREDITH,....	<i>Engineering</i> ,	Calcium, Pa.
CHARLOTTE F. OVEREND,...	<i>Letters</i> ,	Pittsburgh, Pa.
NORMAN S. PASSMORE,....	<i>Arts</i> ,	Oxford, Pa.
MARRIOTT PRICE,.....	<i>Engineering</i> ,	Baltimore, Md.
HELEN D. SOUDER,.....	<i>Letters</i> ,	Woodstown, N. J.
SAMUEL T. STEWART,.....	<i>Arts</i> ,	Cleveland, Ohio.
ELIZABETH SUTTON,.....	<i>Letters</i> ,	New York, N. Y.
JOHN T. THOMAS,.....	<i>Engineering</i> ,	Scranton, Pa.
LOUIS E. THOMPSON,	<i>Letters</i> ,	Penn's Park, Pa.
SARAH E. TRACY,.....	<i>Letters</i> ,	Cornish, N. H.
NORMAN D. VERNON,.....	<i>Engineering</i> ,	Pomeroy, Pa.
LULU VON RAMDOHR,	<i>Letters</i> ,	New York, N. Y.
WILLIAM J. L. WALKER,....	<i>Letters</i> ,	Gap, Pa.
EVA WALLEN,.....	<i>Letters</i> ,	Swarthmore, Pa.
ASA P. WAY,.....	<i>Engineering</i> ,	St. Thomas, Ont., Can.

¹ Anson Lapham Honor Scholar, 1900-1901.

Name	Course	Residence
EDMUND R. WEEK, JR.,.....	<i>Engineering</i> ,	Alexandria, Ind.
MABEL E. WILSON,.....	<i>Science</i> ,....	Selma, Ohio.
GEORGE S. WORTH,.....	<i>Engineering</i> ,	Coatesville, Pa.

FRESHMAN CLASS

Name	Course	Residence
ELVA L. ASH,.....	<i>Letters</i> ,	Coatesville, Pa.
EDWARD M. BASSETT,.....	<i>Engineering</i> ,	Salem, N. J.
M. LOUISE BARTLETT,	<i>Letters</i> ,	Baltimore, Md.
LOUIS H. BATTERSBY,.....	<i>Science</i> ,....	Oak Lane, Pa.
THOMAS C. BELL,.....	<i>Engineering</i> ,	Bayside, N. Y.
ALVIN C. BIRDSALL,.....	<i>Science</i> ,....	Swarthmore, Pa.
CHARLOTTE R. BOGERT,....	<i>Arts</i> ,	New York, N. Y.
CLIFFORD C. BRADBURY,..	<i>Engineering</i> ,	Richmond, Ind.
BLANCHE E. BROWN,.....	<i>Arts</i> ,	Cornwall, N. Y.
ARTHUR BROSIUS, ¹	<i>Science</i> ,....	Avondale, Pa.
MARTHA K. BUYERS,.....	<i>Letters</i> ,	Honey Brook, Pa.
MARGUERITE CAMPION, ¹	<i>Arts</i> ,	Swarthmore, Pa.
GERTRUDE F. CHANDLER,..	<i>Letters</i> ,	Bethlehem, Pa.
EDITH CLEVELAND,.....	<i>Letters</i> ,	Fond du Lac, Wis.
ALFRED B. CREWITT, ¹	<i>Letters</i> ,	Newtown, Pa.
ANNA L. CURTIS, ¹	<i>Science</i> ,....	New York, N. Y.
MARGARET S. DARLINGTON,.	<i>Letters</i> ,	Concordia, Kansas.
ORVILLE S. DUFFIELD,....	<i>Arts</i> ,	Camden, N. J.
ELIZABETH DUNNELL,.....	<i>Arts</i> ,	New York, N. Y.
HELEN N. EMLEY, ¹	<i>Science</i> ,....	Philadelphia, Pa.
LOUISE C. FAHNESTOCK,....	<i>Letters</i> ,	Harrisburg, Pa.
LAWRENCE FLITCRAFT,....	<i>Letters</i> ,	Oak Park, Ill.
DOROTHY F. GREEN,	<i>Arts</i> ,	Bartow, Fla.
EDGAR T. GREENE,.....	<i>Science</i> ,....	Philadelphia, Pa.
MARY A. GUTELIUS, ¹	<i>Arts</i> ,	Swarthmore, Pa.
MABEL B. HAINES, ²	<i>Letters</i> ,	Mickleton, N. J.
JAMES L. HUNT,.....	<i>Arts</i> ,	Holmes, Pa.
HALLIDAY R. JACKSON,....	<i>Arts</i> ,	West Chester, Pa.
GEORGE V. KNIPE,.....	<i>Science</i> ,....	New York, N. Y.

¹ I. V. Williamson Honor Scholar.² Annie Shoemaker Honor Scholar.

Name	Course	Residence
FRANK H. LEONARD,	<i>Engineering</i> ,	Lansdowne, Pa.
CORINNE M. LOWE,	<i>Arts</i> ,	Waynesborough, Pa.
T. BAYNE MARSHALL,	<i>Arts</i> ,	Allegheny, Pa.
ALICE P. MERRIMAN,	<i>Letters</i> ,	South Bethlehem, Pa.
HAROLD W. MOWERY,	<i>Arts</i> ,	Marietta, Pa.
ANNA J. E. NICHOLS, ¹	<i>Letters</i> ,	Wilmington, Del.
MARY A. PARRY,	<i>Letters</i> ,	Jenkintown, Pa.
MARION V. PEIRCE,	<i>Letters</i> ,	West Chester, Pa.
MABEL PRYOR,	<i>Science</i> ,	Langhorne, Pa.
MAUDE E. RICE, ¹	<i>Arts</i> ,	Newtown, Pa.
WILLIAM E. ROBERTS,	<i>Letters</i> ,	New Hope, Pa.
ANNIE ROSS,	<i>Letters</i> ,	Flushing, N. Y.
AGNES H. SIBBALD, ¹	<i>Letters</i> ,	Fox Chase, Pa.
VICTOR W. STEWART,	<i>Science</i> ,	Fostoria, Ohio.
ALICE R. SULLIVAN, ¹	<i>Arts</i> ,	Moorestown, N. J.
C. MARSHALL TAYLOR,	<i>Science</i> ,	West Chester, Pa.
J. HIBBERD TAYLOR,	<i>Letters</i> ,	West Chester, Pa.
PENNOCK M. WAY,	<i>Science</i> ,	Fairville, Pa.
F. BARNARD WELSH,	<i>Letters</i> ,	Rockville, Md.
ALDUS WILBUR,	<i>Letters</i> ,	New York, N. Y.
HERBERT WILLITS,	<i>Science</i> ,	Reading, Pa.

Students in Irregular and Partial Courses

(With the class to which their work most nearly corresponds. See p. 57.)

Name	Course	Residence
JESSIE BARTLETT GINN, . .	<i>Senior Letters</i> , . .	Swarthmore, Pa.
ALBERT N. GARRETT, . . .	<i>Senior Arts</i> ,	Swarthmore, Pa.
WM. M. MUSCHERT,	<i>Junior Science</i> , . . .	Trenton, N. J.
EDGAR L. MEYER,	<i>Sophomore Science</i> ,	Bermuda.
CLARA PRICE NEWPORT, . .	<i>Sophomore Arts</i> , . .	Swarthmore, Pa.
MYRA G. ABRAMS,	<i>Freshman Letters</i> , .	Butler, Pa.
NETTIE S. BLUM,	<i>Freshman Letters</i> , .	Greenville, Miss.
EDITH D. HOPKINS,	<i>Freshman Letters</i> , .	Santa Barbara, Cal.
JOHN R. HOSKINS,	<i>Freshman Science</i> ,	West Chester, Pa.

¹ I. V. Williamson Honor Scholar.

Name	Course	Residence
WILLIAM OVERFIELD, JR.,	<i>Freshman Eng.</i> ,	.. Meshoppen, Pa.
EUGENE R. SCATTERGOOD,	<i>Freshman Eng.</i> ,	.. Columbus, N. J.
LUCY W. SCATTERGOOD,	<i>Freshman Letters</i> ,	.. Columbus, N. J.
SAMUEL SINCLAIR, JR.,	<i>Freshman Letters</i> ,	.. Kennett Square, Pa.

SUMMARY.

Seniors,	36
Juniors,	51
Sophomores,	46
Freshmen,	50
Students in Irregular and Partial Courses,	13
Total,	196

Swarthmore College

Swarthmore College was founded in 1864, through the efforts of members of the Religious Society of Friends, for the purpose of securing to the young people of the Society the opportunity for higher education under the guarded care of those of their own religious faith. Others are admitted upon the same terms as Friends, and nothing of a sectarian nature appears in the instruction or in the management. The intention of the founders, however, to make the promotion of Christian character the first consideration, while, at the same time, providing opportunities for liberal culture and maintaining a high standard of scholarship, has been steadily kept in view.

Swarthmore is ten miles southwest of Philadelphia on the Central Division of the Philadelphia, Wilmington and Baltimore Railroad, and is accessible by frequent trains from Broad Street Station. The College occupies a commanding position, the buildings being located upon high land from which the campus slopes gently down to the level of the Atlantic Plain towards the Delaware River. From the upper stories of the central building the view includes many miles of the river, with the country lying between, and the cities of Philadelphia and Chester in the distance. Crum Creek, flowing through a wooded gorge of great natural beauty, forms the western boundary of the College property, which comprises over two hundred acres.

Buildings

The Principal College Building, 348 feet in length, is a massive stone structure, the central portion of which is separated from the two wings by fire-proof compartments. The central building is five stories in height, and with an extension at the rear provides for assembly room, lecture rooms, museum, library, reading room, parlors, dining hall, etc. The wings are four stories high.

The ground floors are devoted to lecture and recitation rooms; the remaining floors in the east wing contain the dormitories of the young women, and in the west wing those of the young men. The Dean and several instructors reside in the building.

Science Hall is a two-story stone building with basement, 162 by 64 feet, devoted to the departments of Chemistry, Physics, and Engineering. It contains, besides lecture and recitation rooms, electrical, physical, engineering, and chemical laboratories; machine shop, and draughting rooms; foundry, forge, and wood-working rooms; engine and boiler rooms. All departments are well equipped, and new apparatus and machinery are added as occasion demands.

The Astronomical Observatory is especially arranged for purposes of instruction, and contains an equipment suitable both for class work and the prosecution of research. This includes a transit of three-inch aperture, an equatorial telescope of six-inch aperture, with micrometer and spectroscope attachments; a chronograph and chronometer, mean-time and sidereal clocks, and a reference library. Connected with the Observatory is the local Signal Service Station of the State Weather Bureau, fully provided with the necessary meteorological apparatus. The latest addition to the building accommodates a Seismograph of the most approved construction, which records by photographic process any vibration of the crust of the earth.

Other buildings upon the campus are the Meeting-house, the President's House, the West House (birthplace of Benjamin West, erected in 1724, now the residence of the Professor of Greek), the house of the Professor of Astronomy, the gymnasium for young women (Somerville Hall), the gymnasium for young men, the necessary farm buildings, etc.

The Main Building, Science Hall, and the two gymnasiums are heated by steam from a central plant. A new heating system for the Main Building was recently installed; it consists of two 72-inch fans at the extreme ends of the building, which force the air over coils of steam pipe and through conduits accurately graduated in size, to the various rooms, thus insuring proper heat and ventilation.

Religious Culture

The daily sessions of the College are opened by a general assembling of students and instructors for the reading of Scripture or for other suitable exercises, preceded and followed by a period of silence. The students attend Meeting on First-day mornings, with the instructors, members of the household, and Friends of the neighborhood. By these means, and particularly by individual influence, and by the constant effort to maintain in the institution a spirit in harmony with the purpose of its founders, it is believed that a proper care is exercised to mould the characters of young people in conformity to Christian standards.

Social Life

Swarthmore, as a co-educational institution, undertakes to provide college life in a home setting; to supply an atmosphere in which manly and womanly character may develop naturally and completely. It provides that freedom which places upon each individual the responsibility of self-control, demanding the right exercise of his judgment, while making provision for the correction of errors, supplementing his judgment and will, when necessary, by the wise direction of those in whom his confidence may be justly placed. The students meet in the dining-hall as in their homes, and for a social hour in the reception parlor before evening work begins. There are other social occasions in the class receptions that occur during the year, and the more public College receptions to which friends of the institution are invited. This intercourse of the students is under the care of the Dean and her assistants, and it is the aim of the College to make it a means of social culture.

Physical Culture

The Gymnasium for Young Men, erected in 1899, is supplied with a new and complete outfit of apparatus after the Sargent System, and affords facilities for the required class and individual work, as well as for various in-door games. The Gymnasium for

Young Women was erected through the efforts of the Somerville Literary Society, and bears its name. It is furnished with apparatus adapted to the Swedish System. A statement of methods and requirements in the department of Physical Training will be found on page 53.

The extensive and beautiful grounds invite to out-door exercise, which is encouraged in every reasonable way. Whittier Field, the athletic ground for young men, provides a quarter-mile cinder track, a well-graded field for athletic sports, and seats for spectators. Upon the campus are facilities for tennis, golf, basket-ball, and other out-door recreations for both sexes. Cross-country running, bicycle riding, and skating on Crum Creek are favorite forms of exercise.

Students' Societies and Publications

Three literary societies are maintained by the students: the *Delphic* and the *Eunomian* by the young men, the *Somerville* by the young women. Regular meetings are held for literary exercises, which afford opportunity to acquire skill in parliamentary practice and in debate. They are regarded as valuable auxiliaries in the work of the College. Each society has, under the management of its own members, but accessible to all students, a library and a reading room containing periodicals and daily papers. The total number of books in these libraries is over three thousand.

The *Joseph Leidy Scientific Society* has for its object to keep in touch with the results of modern investigation in the four branches of Physical Science and in Engineering. At its meetings, held monthly, announcements of recent discoveries are made by the various instructors, and their meaning and importance are briefly discussed. Papers are also prepared and read by the students who are members.

The *Swarthmore Young Friends' Association* meets monthly in the College; it is open to students, members of the Faculty, and others interested in the testimonies and activities of the Society of Friends.

The *Classical Club*, open to all members of the Greek and Latin classes, meets monthly to discuss subjects of interest to students of classical antiquity.

The *Camera Club* is an organization of young men for studying the principles of photography and their application to illustrative and scientific work. Their reading-room is supplied with photographic books and journals. The club gives an annual lantern-slide exhibition of the work done by its members.

The *Athletic Association* is an organization of the young men for the encouragement of physical culture and athletic sports.

The *Girls' Athletic Club* is a similar organization of the young women.

Two periodicals are published by the students under the supervision of the Faculty. The *Phoenix*, a semi-monthly, is devoted to the interests of the College community and of the Alumni; the *Halcyon* is published annually by the Junior Class.

Libraries and Reading-Room

The *Libraries* of the College collectively contain 20,041 bound volumes, as follows:

The General Library,	13,800
Literary Societies' Libraries,	3,800
Friends' Historical Library,	2,441

The Edgar Allen Brown Fund, established in memory of a former student, and the Alumni Fund, are at present the chief source of income for increasing the collection in the General Library.

Friends' Historical Library, founded by the late Anson Lapham, of Skaneateles, N. Y., contains a valuable collection of Friends' books, photographs of representative Friends, and manuscripts relating to the Society and its history, and is, upon application to the Librarian, accessible to all persons interested in the doctrines and history of Friends. This collection is stored in a fire-proof apartment, and it is hoped that Friends and others will deem it a secure place in which to deposit books and other

material in their possession which may be of interest in connection with the history of the Society. Such contributions are solicited, and should be addressed to Friends' Historical Library, or to ARTHUR BEARDSLEY, *Librarian*, Swarthmore, Pa.

The Reading Room is supplied with reference books, the leading literary, scientific, and technical journals, and with the principal newspapers.

Besides the above, the great collections of books in the Philadelphia Library, the Mercantile Library, the Free Library of Philadelphia, and the University of Pennsylvania, as well as those in the special and technical libraries of the city, are open to the use of students under proper regulations.

The Museum

The Museum of the College is strictly an educational collection, and the specimens from its cases are in constant use in the lecture room and laboratory. It is growing steadily, and always in the direction of rendering more perfect the means of illustrating the different departments of Physical Science.

It includes the following collections:

1. The *Joseph Leidy Collection of Minerals*, the result of thirty years' discriminating collection by its founder, consists of exceedingly choice cabinet specimens of minerals, characteristic rocks and ores and models of the various systems of crystallization.
2. The *Collection Illustrating Comparative Osteology* consists of a large series of partial and complete skeletons, prepared at Prof. Henry Ward's Natural History Establishment in Rochester, N. Y., and illustrates the structure and framework of vertebrates.
3. The *Wilcox and Farnham Collection of Birds* comprises stuffed specimens of native and foreign birds. Nearly all the species visiting this State are represented.
4. The *Frederick Kohl Ethnological Collection* consists of Indian implements, weapons, clothing, etc., mostly from Alaska.
5. The *C. F. Parker Collection of Shells* is made up of choice typical, land, fresh-water, and marine shells. These specimens were all selected by the late Dr. Joseph Leidy from the extensive

collection of the founder, C. F. Parker, who was for many years the Curator in charge of the Academy of Natural Sciences of Philadelphia.

6. The *Robert R. Corson Collection of Stalactites and Stalagmites* is composed of specimens from the Luray Caverns, and illustrates the peculiar limestone formations of that and similar districts.

7. The *Eckfeldt Herbarium* contains over two thousand specimens illustrating the flora of Pennsylvania. The *Annie Shoemaker Collection* is a valuable addition to this.

In addition to the above, there is a large and constantly increasing collection of specimens of vertebrates and invertebrates (including the U. S. Fish Commission Educational Collection), of dissected specimens for demonstration in the lectures on Physiology, glass and papier-mâché models of invertebrates and of special points in vegetable and animal morphology, besides some three hundred classified diagrams and colored charts illustrating every branch of natural history.

Expenses

The cost of board and tuition is \$400 per year, of which \$250 is payable in advance, and \$150 on the first of First Month.

The tuition of non-resident students is \$150 per year, of which \$125 is payable in advance, and the remainder on the first of First Month. When they take luncheon with the resident students there is an additional charge of \$50 per year.

A deposit of five dollars is required of each young man to defray any expense incurred by injury to property. The unexpended balance will be returned at the end of the year.

Students purchase their own books, which the College will furnish at the lowest rates obtainable. They also buy their own stationery, drawing implements, and certain tools and materials used in the workshops, and pay a reasonable rate for laundry work done at the College.

In case of illness, no extra charge is made unless a physician or trained nurse is employed.

The above may be depended upon as covering all necessary expenses.

Payments

Payments are to be made by check or draft to the order of

ROBERT BIDDLE, Treasurer,

No. 507 COMMERCE STREET, PHILADELPHIA, PA.

Fellowships and Scholarships

FELLOWSHIPS

THE JOSHUA LIPPINCOTT FELLOWSHIP, founded by Howard W. Lippincott, A. B., of the Class of 1875, in memory of his father, consists of a fund yielding an income of \$450 per year, which is granted annually by the Faculty, with the concurrence of the Instruction Committee, to a graduate of the College to enable him to pursue advanced study under the direction or with the approval of the Faculty.

THE LUCRETIA MOTT FELLOWSHIP, founded by the Somer-

ville Literary Society and sustained by the contributions of its members, yields an annual income of \$525. It is awarded each year by a Committee of the Faculty (selected by the Society), with the concurrence of the Life Members of the Society, to a young woman graduate of that year, who is to pursue advanced study at some other institution approved by this Committee.

SCHOLARSHIPS

1. THE WESTBURY QUARTERLY MEETING, N. Y., SCHOLARSHIP pays all charges for board and tuition, and is awarded annually by a Committee of the Quarterly Meeting.

2. THE REBECCA M. ATKINSON AND THE BARCLAY G. ATKINSON SCHOLARSHIPS yield \$200 each, and are awarded annually by the Board of Managers of the College.

3. THE ANNIE SHOEMAKER SCHOLARSHIP pays all charges for board and tuition, and is awarded annually to a young woman graduate of Friends' Central School, Philadelphia.

4. There are nine other similar Scholarships owned by individuals, each entitling the holder to board and tuition at the College. These are awarded by the owners.

5. I. V. WILLIAMSON SCHOLARSHIPS FOR PREPARATORY SCHOOLS:

For the year 1901-1902 fifteen honor scholarships of the value of \$150 each for resident, and \$75 each for non-resident students, will be offered to members of the graduating classes of 1901 of the following-named schools upon the conditions mentioned below:

2 to Friends' Central School,	Philadelphia, Pa.
1 to Friends' Seminary,	New York, N. Y.
1 to Park Avenue Friends' High School, .	Baltimore, Md.
1 to Friends' School,	Wilmington, Del.
1 to Friends' High School,	Moorestown, N. J.
1 to Friends' Academy,	Locust Valley, N. Y.
1 to Friends' Select School,	Washington, D. C.
1 to Abington Friends' School,	Jenkintown, Pa.
2 to George School,	George School, Pa.
1 to Chappaqua Mountain Institute,	Chappaqua, N. Y.
1 to Swarthmore Preparatory School,	Swarthmore, Pa.
1 to Swarthmore Public High School,	Swarthmore, Pa.
1 to Martin Academy,	Kennett Square, Pa.

These scholarships will be awarded upon competitive examination under the direction of the College Faculty. None will be awarded to applicants who fail to be admitted without condition to the Freshman Class, and every holder of such scholarship must pursue in College the studies of one of the regular courses.

6. For the year 1901-1902 three honor scholarships are offered for work in the College as follows:

THE DEBORAH FISHER WHARTON SCHOLARSHIP: To that member of the Junior Class of 1900-1901 who, on promotion without condition to the Senior Class, shall have passed the best examinations on the regular work of the year; \$200, if resident; \$100, if non-resident.

THE SAMUEL J. UNDERHILL SCHOLARSHIP: To that member of the Sophomore Class of 1900-1901 who, on promotion without condition to the Junior Class, shall have passed the best examinations on the regular work of the year; \$200, if resident; \$100, if non-resident.

THE ANSON LAPHAM SCHOLARSHIP: To that member of the Freshman Class of 1900-1901 who, on promotion without condition to the Sophomore Class, shall have passed the best examinations on the regular work of the year; \$200, if resident; \$100, if non-resident.

If any of the Scholarships under 5 and 6 are not awarded, the funds thus released will be applied to Scholarships similar to those under 7.

7. For the benefit of students needing pecuniary aid, whose previous work has demonstrated their earnestness and their ability, the following are offered. About one-fourth of them will be available for new students for the year 1901-1902. They will be awarded at the discretion of the Committee on Trusts, Endowments, and Scholarships. Application should be made to the President.

THE SAMUEL WILLETS SCHOLARSHIPS: Ten scholarships of \$150 and ten scholarships of \$100 per year.

THE ISAAC STEPHENS SCHOLARSHIPS: Four scholarships of \$50 per year.

THE MARY WOOD SCHOLARSHIPS: Two scholarships of \$50 per year.

Admission

Application for admission should be made as early as possible by letter to the President.

All applicants must present satisfactory testimonials of good character from their former teachers, and students coming from other colleges must offer certificates of honorable dismissal.

Students admitted to the College are expected to abstain entirely from the use of tobacco.

The examinations for admission may be taken either in the Summer, at the close of the College year, or in the Autumn. See Calendar for the dates.

Students are not admitted for a period less than the current College year; but, when vacancies exist, they may enter at any time during the year.

Requirements for Admission

Candidates for admission to the Courses in Letters, Science, and Engineering, must present the studies numbered 1, 2, 3, and 4, below; and, in addition, *four* of the remaining ten. Candidates for admission to the Course in Arts must present the studies numbered 1 to 6, inclusive, and, in addition, *two* of the remaining eight.

1. MATHEMATICS.—*Arithmetic* (entire).

Algebra.—To Permutations and Combinations in a book of High-School grade. (Hall and Knight's, or C. Smith's, elementary text-book is suggested.)

Geometry.—The whole of Plane Geometry.

2. ENGLISH GRAMMAR AND COMPOSITION.

3. ENGLISH LITERATURE.

For 1901 and 1902:*

* For 1903 to 1905:

(a) A *general* knowledge of the following works and their authors: Shakespeare's *The Merchant of Venice* and *Julius Cæsar*; the *Sir Roger de Coverley Papers* in *The Spectator*; Goldsmith's *The Vicar of Wakefield*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe*; Carlyle's

(a) A *general* knowledge of the following works and their authors: Shakespeare's *The Merchant of Venice*; Pope's Homer's *Iliad*, Books I, VI, XXII, and XXIV; the *Sir Roger de Coverley Papers* in *The Spectator*; Goldsmith's *The Vicar of Wakefield*; Coleridge's *The Rime of the Ancient Mariner*; Scott's *Ivanhoe*; Tennyson's *The Princess*; Cooper's *The Last of the Mohicans*; George Eliot's *Silas Marner*.

(b) A *special* knowledge of the subject-matter, form, and structure of the following works: Shakespeare's *Macbeth*; Milton's *L'Allegro, Il Penseroso, Comus* and *Lycidas*; Burke's *Speech on Conciliation with America*; Macaulay's *Essay on Milton* and *Essay on Addison*.

4. HISTORY.—Any two of the following: United States, England, Greece, Rome, General History. Text-books suggested for preparation: McMaster's "School History of the United States;" Gardiner's "School History of England;" Oman's "Greece;" Allen's "Rome;" Myers's or Colby's "General History."

In addition to the above, candidates must present either:

- (a) Elementary and Advanced work in two languages;
- or (b) Elementary work in two languages, with Advanced work in one of the two, and 13 or 14;
- or (c) Elementary and Advanced work in one language, and 13 and 14.

5. ELEMENTARY LATIN.—First Latin Book; Caesar, four books; Latin Grammar, the essentials, particularly paradigms and elementary syntax.

6. ADVANCED LATIN.—*Æneid*, six books; Cicero, seven orations (including those against Catiline: *Pro Milone* or *Pro Lege Maniliâ* will be counted as two); Latin Composition†; the accurate translation into Latin of easy sentences involving words and constructions of frequent occurrence in Cicero's first Oration against Catiline.

7. ELEMENTARY GREEK.—Grammar (Goodwin's recommended); Elementary Composition; Xenophon's *Anabasis*, Book I.

8. ADVANCED GREEK.—*Anabasis*, Books II, III, IV; *Iliad*, Books I, II, III; General History of Greece to the death of Alexander.

9. ELEMENTARY GERMAN.—Thomas's Practical German Grammar, Part I; Grimm's *Märchen* (twelve selections); Eichendorff's *Aus dem Leben eines Taugenichts* (Chapters VII and VIII omitted); E. S. Buch-

Essay on Burns; Tennyson's *The Princess*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

(b) A *special* knowledge of the subject-matter, form, and structure of the following: Macaulay's *Essay on Milton* and *Essay on Addison*; Burke's *Speech on Conciliation with America*; Shakespeare's *Macbeth*; Milton's *Paradise Lost*, Books I and II.

† The attention of teachers is especially called to the importance of Latin Composition as a foundation for College work.

heim's *Elementary Prose Composition*, Part I; Schiller's *Wilhelm Tell* (first three acts). Equivalents will be accepted.

10. ADVANCED GERMAN.—Thomas's *Practical German Grammar* (reviewed and continued); Schiller's *Wilhelm Tell* (completed); one of Riehl's *Culturgeschichtliche Novellen*; Freytag's *Die Journalisten*; Goethe's *Iphigenia auf Tauris*; E. S. Buchheim's *Elementary Prose Composition* (Parts II and III); German ballads and lyrics (seven to be memorized). Equivalents will be accepted.

11. ELEMENTARY FRENCH.—Ability to pronounce, to read easy prose at sight, to put into French simple English sentences, and to answer questions on the elements of the Grammar (Grandgent's *The Essentials of French Grammar* is recommended). About three hundred pages of modern prose should have been read; the preparation should occupy two years, with at least three recitations per week.

12. ADVANCED FRENCH.—Ability to read at sight more difficult French, including plays of the classic period, to put easy English prose into French, to answer questions involving an advanced knowledge of the syntax as presented in the *French Grammars* of Bevier, Edgren, or Whitney. About seven hundred and fifty pages should have been read; the preparation is expected to occupy four years, with at least three recitations per week.

13. SCIENCE.—Two of the following: Botany, Chemistry, Physical Geography, Physics, Zoölogy, as presented in the better class of High-School text-books.

14. Solid Geometry, and Plane Trigonometry as presented in the textbook of Crockett, Murray, or Crawley.

Admission by Certificate

Graduates of Friends' Schools and of public High Schools approved by the Faculty and Instruction Committee will be admitted to the Freshman Class on certificate of the Principal, but this privilege does not secure in every case admission without condition.

Students admitted by certificate are received on trial, and the Faculty reserves the right to change their classification or to decline to continue their connection with the College, if they are found not properly prepared. The privilege of sending students on certificate may be withdrawn from any school whose pupils are found to be deficient.

Principals of other schools who wish to have students admitted on their recommendation, should correspond with the President concerning each case.

The Certificates issued by the College Entrance Examination Board* will be received for admission.

* Organized in 1899 by the Association of Colleges and Preparatory Schools of the Middle States and Maryland.

Departments of Instruction

ALPHABETICALLY ARRANGED.

The figures in parenthesis after each course refer to the number of recitation periods per week. For tabular statement of Courses of Study leading to the Bachelor's Degree, see pp. 59-62.

Biblical Literature

JESSE H. HOLMES, *Professor*

The courses in Biblical Literature are entirely unsectarian, being based on the results obtained by conservative Christian scholars. It is the intention to give such a general knowledge of the Hebrew Scriptures from the religious, historical, and literary points of view as should be possessed by all intelligent persons in view of the important place those writings have filled in the history of civilization.

COURSE I. Assigned Readings in the Old Testament, supplemented by recitations, and by lectures on contemporary history, etc. Required of all Freshmen. (1.)

COURSE II. Assigned Readings in the Old and New Testaments, supplemented by recitations, and by lectures on contemporary history, etc. Required of all Sophomores. (1.)

COURSE III. Detailed study of selected portions of the Bible. Elective for Juniors and Seniors. (2.)

Course III involves, in addition to further Bible readings, definite studies in Hebrew History and allied subjects. It will be devoted to a study of the Old and New Testaments in alternate years, the New Testament being considered in 1901-2. Special attention will be paid to the development of ethical ideas in the Old Testament and to the culmination of that development in the New Testament.

Biology and Geology

SPENCER TROTTER, *Professor*

The course in Biology embraces the subjects of Zoölogy and Botany; Mammalian and Human Anatomy; Physiology; Verte-

brate Morphology and Development (Embryology); and Normal Histology.

While it is designed to give a broad and liberal view of the facts and problems of life as a part of the system of general culture, the course in Biology is especially valuable to students who are looking forward to the study of Medicine.

Lectures, demonstrations, and text-books are used in connection with laboratory work. The course is arranged as follows:

COURSE I. *a.* ELEMENTS OF ZOÖLOGY.—Lectures and laboratory work covering the practical study of the main types of vertebrates and invertebrates, and the consideration of the problems of geographical distribution, environment, heredity, structure, function, and development. Text books: Kingsley's *Comparative Zoölogy*; Trotter, *Abstract of Zoölogy*. (4.) First Semester.

b. ELEMENTS OF BOTANY.—Lectures and laboratory work. Examination of the tissues of the plant, and consideration of the physiology of cell-life and of plant morphology. This includes a course in Economic and Agricultural Botany. Text-books: Potter's *Agricultural Botany*; Gray's *Botany*. The course in Botany and Zoölogy embraces a working knowledge of the microscope. (4.) Second Semester.

Students desiring to do more advanced work in the study of plant structure will be given an opportunity by making special arrangements with the Professor.

COURSE II. MAMMALIAN AND HUMAN ANATOMY AND PHYSIOLOGY.—Dissection of the cat as a type; osteology, myology, visceral anatomy, the blood-vessel system, and the brain and nervous structures. Detailed study of the human skeleton and the various structures of the human body as compared with those of the lower animals. Lectures and demonstrations. Text-books: Mivart's *The Cat*; Jayne's *Mammalian Anatomy*; Huxley's *Physiology*. Reference books: Gray's *Anatomy*; Foster's *Text-book of Physiology*. (8=4.)

COURSE III. *a.* VERTEBRATE MORPHOLOGY.—Advanced dissection of vertebrate types. Text-books: Martin and Moale's

Handbooks of Vertebrate Dissection; Huxley's Comparative Anatomy of Vertebrates.

b. NORMAL HISTOLOGY.—Microscopic examination and study of animal tissues.

c. EMBRYOLOGY.—Text-book: Foster and Balfour's *Elements of Embryology*. (8=4.)

COURSE IV. GEOLOGY.—A study and practical examination of all the important types of rocks; lectures on structural and dynamic geology; study of geological horizons, etc.

During the course Geology in relation to Sanitary Science is considered. Open to all students above the Freshman Class. (2.)

Chemistry

* WILLIAM C. DAY, *Professor*

GREGORY PAUL BAXTER, *Assistant Professor in charge*

The course in Chemistry extends through a period of four years. The completion of this course will enable the graduate to enter at once upon a university career as candidate for the degree of Doctor of Philosophy; to enter upon professional work as analytical or technical chemist; or to engage in teaching chemistry in a fully equipped secondary or college preparatory school.

Those who may desire to continue the study beyond the limit of the College course will have suitable work assigned them and will be provided with every facility for carrying it on.

The *Chemical Laboratory* occupies a part of Science Hall; it includes rooms for work in general chemistry, qualitative and quantitative analysis, and organic chemistry; also a commodious experimental lecture room, balance room, library, a research laboratory, a basement room for assaying and metallurgy, and store-rooms for apparatus and chemicals.

Laboratory supplies are in great part imported duty free from Germany, and are in all cases selected with reference to use in the most modern methods of analysis or of experimental demonstration in the lecture room and laboratory. The balances

* On leave of absence.

in use are of the best Troemner pattern, and from the very beginning the student in quantitative analysis is allowed to use only the most exact instruments for weighing, thus cultivating from the start the delicacy of manipulation so essential to the attainment of precision in scientific work. Conveniently located with respect to the various working rooms is a library of standard works of reference, journals, etc.

Text-Books. From the beginning the student is taught to regard the text-book as an aid to the comprehension of phenomena and general principles in the science, and as subordinate to actual laboratory contact with substances and the direct study of their changes. *The thing itself, and not the word representing it, must form the mental picture.* The following books are at present in use: *Elementary Chemistry*, Greene and Keller; *Qualitative Analysis*, A. A. Noyes; *Introduction to the Study of Carbon Compounds*, Remsen; *Quantitative Chemical Analysis*, Talbot, for beginners, Fresenius, for advanced students; *Modern Theories of Chemistry*, Ostwald, translated by Walker. In special lines of work, such as iron and steel analysis and technical analysis in general, such special works are used as the subjects call for.

COURSE I. General Descriptive Chemistry. A study of the metals and non-metals and of the fundamental laws and theories of Chemistry. Lectures and laboratory work. (4.)

COURSE II. Qualitative analysis, basic and acid; chiefly laboratory work. (8=4.)

COURSE III. *a.* Organic Chemistry. Lectures on the chemistry of the compounds of carbon. (2.)

b. Organic laboratory work. (4=2.)

c. Quantitative Analysis.—Gravimetric and Volumetric. Chiefly laboratory work. (7=3.)

Courses III *a* and III *c* may be elected separately. Course III *b* must either be accompanied, or have been preceded, by Course III *a*.

COURSE IV. *a.* Physical Chemistry. Lectures and collateral reading. (2.)

b. Advanced Quantitative Analysis. Laboratory work in such department of Analytical Chemistry as may best suit the future interest or occupation of the student. (6=2.)

After the College Year 1901-1902, students electing Course IV must have studied Conic Sections. A knowledge of Calculus is desirable.

Drawing and Painting

BEATRICE MAGILL, *Director of Studio and Lecturer*

A course of Freehand Drawing and Painting is open to all. Aside from its intrinsic value as a means of culture the study leads to habits of close observation, and may be made an important adjunct to other courses, especially to those in Engineering and Science.

The work of the department consists in drawing from objects and casts, painting from still-life, flowers, etc., together with a series of lectures on the History of Painting. A sketch class is open to students properly qualified. It is held one afternoon a week in Spring and Autumn for out-door sketching.

As the teaching in this department is altogether individual and adapted to the special needs of each student, there is no course marked out for each class, but every student must pursue the following graded courses:

COURSE I. Drawing from geometrical objects; still-life; cast, ornament; cast, details of figure; cast, head or figure. (6=2.)

After a sufficient training in drawing, the student may pass to painting (either in water-color, oil, or pastel) from still-life, flowers, and to out-door sketching.

COURSE II. History of Painting. First Semester: Early Italian Painting. Second Semester: Later Renaissance Painting in Italy. (2.)

COURSE III. First Semester: Flemish and Dutch Art. Second Semester: Art in Germany, Spain, France, and England. (2.)

Courses II and III are given in alternate years. During the year 1900-1901 Course III was given.

Students are required to present written abstracts upon the subjects under consideration.

Engineering and the Mechanic Arts

WILBUR M. STINE, *Professor*

THOMAS A. CLARK, *Assistant*

JESSE I. BREWER, *Assistant*

The course in Engineering and the Mechanic Arts is designed to afford a thorough general training for students who intend to engage in the profession of Civil, Mechanical, or Electrical Engineering.

The location of the College is most favorable for engineering students; its ready access to Philadelphia and to the important manufacturing cities in the vicinity affords opportunities for instructive visits to a great variety of industrial and engineering works.

The course of instruction in both the theory and practice of Engineering is arranged with the view of furnishing to its graduates a liberal preparation for immediate usefulness in the office, works, or field, in more or less subordinate positions. By adding familiarity with commercial demands and practices to the theory and practice of the school, they may successfully undertake the design of machinery, the superintendence of works, or the conduct of engineering enterprises.

The instruction is given both by lectures and recitations, and in the exercises in field, shop, laboratory, and draughting-room there is constant opportunity for individual instruction. Throughout the entire course the student is familiarized with the methods and processes of the Mechanic Arts by systematic instruction both in wood and metal working. The object is to avoid mere manual routine in such exercises, and to make them a means for the development of the powers of observation and judgment, as well as for the acquisition of mechanical skill.

The field equipment of the department is ample for practice in

surveying and locations, and opportunity is given the student to become familiar with the use and adjustment of the apparatus.

The Draughting Rooms are large, well-lighted, and furnished with adjustable tables, models, etc., and are open for work during the greater part of the day.

The Engineering Laboratory contains a ten horse power vertical steam engine, an Olsen's testing machine, arranged for tensile, compressive, and transverse tests, steam engine indicators, apparatus for hydraulic and steam engine experiments, and other valuable instruments and appliances.

A friend of the College has recently presented an Olsen screw-gear testing machine to the Laboratory. This machine has an ultimate capacity of 100,000 pounds for tension and compression tests. Other additions to the equipment are micrometers for tension, compression, and deflection strains; and attachments to the smaller Olsen machine for testing specimens of cement.

SHOP WORK. This portion of the work holds an important place in the general engineering course, being pursued through the first three years. It is not desired to impart the skill of the trained workman, but rather to lay a foundation in the elements of shop practice upon which mature judgment and observation may establish successful practice.

The course in woodworking covers instruction in joining, framing, and woodturning. This preliminary work is followed by the elements of patternmaking.

The work in forging is based on a set of exercises involving drawing, bending, upsetting, welding, and tempering. This course is followed by a short one in foundry practice.

Machine practice is pursued through two years of the course. During the first year, practice is given in bench and vise work, followed by lathe work, and exercises on the planer, shaper, and universal milling machine. The various exercises also involve tapping, screw cutting, and work to standard gauges.

During the second year, after completing the design and draft of a machine, such as a lathe, small pump, or engine, the

project is completely constructed, affording the student a thorough experience in shop construction.

The Machine Shop contains an excellent assortment of tools, including screw cutting engine lathes, speed lathes (simple and back geared), an iron planer, a complete universal milling machine, a set of milling cutters, a shaper, a twist-drill grinder, upright drills, an emery grinder, a mill grinder, lathe centre grinder, vises (plain and swivel), lathe chucks (combination, independent, scroll, and drill), a milling machine chuck, a rotary planer chuck, planer centres, a set of Bett's standard gauges, surface plates (Brown & Sharpe), sets of twist drills, reamers, mandrels, screw plates, taps and dies, a complete set of steam fitters' tools, with pipe vise, ratchet drill, etc., together with the many necessary small tools, hammers, chisels, files, etc. Additions are constantly being made to this collection as they are needed, either by manufacture in the shops or by purchase. Power is furnished by a 10x24 Corliss steam engine and a sixty horse power return tubular boiler, the former fitted with an improved indicator, and the latter with the necessary attachments for determining its efficiency, etc.

The Woodworking Shop contains benches with vises and sets of woodworking tools, grindstone, and woodturning lathes.

The Smith Shop contains forges, anvils, and sets of blacksmith tools, bench, and vise.

The Foundry contains a brass furnace, moulders' benches, a variety of patterns, and full sets of moulders' tools.

The details of the course vary somewhat from year to year, but in general are represented by the following arrangement of the studies:

FRESHMAN YEAR

DRAFTING—Use of Instruments and Elements of Structural and Machine Drawing; Representation of Materials of Construction; Projections; Pen Lettering; Drawings from Objects, these being the Exercises in Woodworking and Machine Practice, with Tracings and Blue Prints.

SHOP WORK.—Woodworking, Forging, and Founding.

SOPHOMORE YEAR

DRAWING—Plates in the course in Descriptive Geometry; Tinting; Pen Topography. Complete Working Drawings, Tracings, and Blue Prints from a simple Machine or Structure.

SHOP WORK.—Vise Work; Chipping and Filing; Machine Practice.

DESCRIPTIVE GEOMETRY—The Point, Right Line and Plane; Figures of Revolution; Intersections. (First Semester.)

SURVEYING—Theory and Practice; the Use and Adjustment of Instruments. (Second Semester.)

GRAPHICS—The Elements of Graphical Statics and the Investigation of Simple Structures.

JUNIOR YEAR

MECHANICS OF MATERIALS.—Theory of Elasticity; Stresses and Strains; Applied Mechanics of Materials of Construction.

MACHINE DESIGN—Kinematics; Simple Machines.

STRUCTURES—The Materials of Construction.

THERMODYNAMICS—Theory of the Heat Engine; Steam and Gas Engines.

SURVEYING—Field Practice with Level, Transit, and Plane Table; Stadia Surveying.

SHOP WORK—Preparation of Working Drawings, and the Construction of a Machine Project, such as a Lathe Head.

LABORATORY—Quantitative Determinations in the Mechanics of Materials; Experimental Work with the Steam Engine, including Valve Setting.

SENIOR YEAR

RAILWAY AND ROADWAY ENGINEERING—Surveys and Study of Construction; Railway Economics; Theory of Curves.

HYDRAULICS—Mechanics of Fluids; Theory and Practice of Water Motors.

THEORY OF ERRORS—General Discussion; Application to Engineering Calculations.

SPECIFICATIONS—The Preparation of Complete Specifications for a Structural Project, including Drawings and Estimates.

METALLURGY—Lectures on the Metallurgy of Iron and Steel.

DRAWING AND DESIGN—The Design of a Structure or a Machine with full Working Drawings, Tracings, and Blue Prints. Bridge and Roof Truss Design.

POWER PLANTS—Steam and Hydraulic Plants; Electric Lighting and Power Plants.

English Language and Literature

*WILLIAM HYDE APPLETON, *Anglo-Saxon and World Literature*
JOHN RUSSELL HAYES, *English Literature, Rhetoric, and Composition*
MYRTIE E. FURMAN, *Elocution and Oratory*
BENJAMIN F. BATTIN, *World Literature*

The course in English Literature extends through three years, instruction being given by recitations and lectures. During this time the English Language is studied in connection with the Literature from the Anglo-Saxon period to the present. The particular feature of the course is the critical reading in the class-room of representative authors, such as Chaucer, Spenser, Shakespeare, Milton, Pope, Wordsworth, Tennyson, Emerson, and Whittier. Peculiarities of style and language are considered, and every effort is made towards a thorough comprehension of the literature studied. The author's life is discussed in its relations to the history of the time, and his works are compared with those of his contemporaries. By this course it is expected that the student will be enabled to form an intelligent estimate of the style and merits of the great authors of English Literature.

So far as practicable, the work in Literature, in Rhetoric and Composition, and in Elocution and Oratory, is co-ordinated. The subjects for essays are drawn in part from the work in Literature; and in Elocution and Oratory the development of intelligent oral expression is considered to depend upon the study, as literature, of the selections read.

a. *English Literature.* Assistant Professor HAYES.

COURSE I. Essays of Lamb and Emerson; Poetry of Wordsworth, Shelley, Keats, Tennyson, Arnold, and Whittier.

The aim here, as in all the courses, is towards intellectual discipline and spiritual insight, no less than towards an appreciation of literary values. Portions of other authors are read; and a short historical survey of the Greek and Roman literatures is given, in order to illustrate the debt of the English to the

* On leave of absence for the year.

earlier great literatures. Selected books are assigned also for private reading, and students write critical reports thereon.

Required of Freshmen in Letters and Engineering. (4.)

COURSE II. Marlowe's *Edward II* and parts of *Tamburlaine*; Lodge's *Rosalynde*; selected plays of Shakespeare, with comparative study of his predecessors; Milton; minor poets and essayists of the seventeenth and eighteenth centuries. Lectures on the Elizabethan and following periods. Private readings and reports. Required of Sophomores in Letters. (4.)

For the Sophomores in Engineering a separate course is given, in which are read representative authors from Chaucer to Arnold. (2.)

COURSE III. First Semester. Anglo-Saxon: Sweet's Primer, Cynewulf's *Elene*, or *Beowulf*; Lectures on the Anglo-Saxon period.

Second Semester. Chaucer; Spenser's *Faery Queene*; private reading of contemporary authors; Lectures on the Transition and Middle English periods, and on the Development of the English Language.

Required of Juniors in Letters. Elective for Seniors and Juniors in Arts, Science, and Engineering. (4.)

Besides the required class-work there is in all classes opportunity offered for students to pursue additional reading and investigation under the direction of the professors.

b. *World Literature*. Dr. BATTIN.

This is a course in the study of great classics, other than English, belonging to ancient and modern literature. The first semester is devoted mainly to Homer—the Iliad and the Odyssey—and to the Greek Drama; the second semester mainly to Dante. The course is conducted through the medium of standard English translations, together with lectures by the instructor, and oral discussions and written abstracts by the students.

Elective for all Seniors and Juniors. (4.)

c. *Rhetoric and Composition*. Assistant Professor HAYES.

COURSE I. Practice in clear and logical expression. Required of all Freshmen. (1.)

COURSE II. Study of modern prose masterpieces; essay-writing. Required of Sophomores in Arts, Letters, and Science. (1.)

COURSE III. Advanced study of invention and expression; writing of special themes and critical papers. Lectures on Prose Style. Required of Juniors in Arts, Letters, and Science. (1.)

COURSE IV. The preparation of graduating theses. Required of all Seniors.

d. Elocution and Oratory. Assistant Professor FURMAN.

The aim in this course is to stimulate mental activity, to cultivate the imagination, and to arouse the sensibilities, the theory being that effective expression is a result of vivid mental impressions. Hence the student is given exercises whereby he learns to utilize his experiences, to vivify his thought, and thus enter into the spirit of the literature and make it a part of himself. Due attention is given to voice culture, and to certain phases of physical training which tend to bring the body into harmony with the mind and to make it a more perfect instrument of expression.

The course extends through four years, two periods per week, and consists of voice culture and drill in enunciation; original work, including extemporaneous speech and debate; recitation of typical orations in connection with the work required under Rhetoric and Composition; careful interpretation of Shakespeare and other standard authors.

ORATORICAL ASSOCIATIONS AND CONTESTS.

The *Swarthmore College Oratorical Association* conducts an annual contest, open to all students, the winner in which represents the College in the annual contest of the *Pennsylvania Inter-Collegiate Oratorical Association*.

The following prizes are also offered:

The President's Prize of fifty dollars, to be contested for by representatives of the Sophomore and Freshman Classes, and invested in some permanent memento of the successful class, to remain in the College.

A Prize of fifty dollars, offered annually by Owen Moon, Jr., of the Class of 1894, to the representative of the College in the Pennsylvania Inter-Collegiate Oratorical contest.

The Sproul Testimonial of twenty-five dollars, offered by Hon. Wm. C. Sproul, of the Class of 1891, to be awarded as prizes in an oratorical contest open to members of the Junior Class.

Prizes in Extempore Speaking: two prizes of twenty-five dollars each, one contested for by the young men and one by the young women, have been offered during the last three years by a friend of the College.

The Hicks Testimonial of fifteen dollars, given annually by Frederick Cocks Hicks, a former student of the College, to be contested for by members of the Eunomian Literary Society.

The Underwood-Ponder Testimonial, a silver cup given by Wm. G. Underwood, of the Class of 1887, and James W. Ponder, of the Class of 1890, to be annually contested for by the literary societies of the College.

French Language and Literature

EDWARD H. MAGILL, *Professor Emeritus and Lecturer*

T. ATKINSON JENKINS, *Professor*

The instruction in this department has as a basis the study of ordinary colloquial French as a living language. Though reading is begun very early, colloquial French (including pronunciation) continues to receive the most attention throughout the first two years. The student will then be ready to be brought into contact with the more artificial (rhetorical) forms of expression constantly occurring in the higher grades of literature.

In the later years a series of lectures is given on the more prominent French writers. In these lectures, the biographical element purposely receives especial attention; no attempt is made at exhaustive treatment, but the aim is to make the student familiar with the leading works of the authors chosen.

COURSE I. Elements of Grammar, with Composition. Beginners' Reader, followed by narrative prose (Sarcey's *Le Piano de Jeanne*, or Mme. de Witt's *Sur la Pente*, Prose Selections from V. Hugo, etc.) and by modern plays. (4.)

COURSE II. Grammar continued, with prose Composition (Marcou's *Exercises*). Sandeau's *Mademoiselle de la Seiglière* Daudet's stories, including *La Belle-Nivernaise*; Molière's *L'Avare*. (4.) First Semester.

Corneille (one play), Racine (one play), Victor Hugo's *Ruy Blas*, or *Hernani*. (4.) Second Semester.

COURSE III. Prose Composition (Grandgent's *Selections*). Prose selected from the writings of A. France (Vol. III, Magill's Series), Balzac, G. Sand, J. Claretie (Vol. IV, Magill's Series), etc., with private reading. (4.) First Semester.

Molière's *Les Précieuses Ridicules* and *Les Femmes Savantes*; Voltaire's *Le Siècle de Louis XIV* (selected chapters); Dowden's History of French Literature (to the XVIth century). (4.) Second Semester.

COURSE IV. Prose Composition continued. Prose authors of the XVIIth century (Pascal, Bossuet, La Bruyère, Mme. de Sévigné, etc.); Harper's Selected Essays of Sainte-Beuve, with illustrative readings; Lectures, XVIIth and XVIIIth centuries; Dowden's History continued. (4.) First Semester.

French Lyric Poetry, Canfield's Selections, with special attention to V. Hugo, Lamartine, and more modern poets. Lectures, XIXth century. (4.) Second Semester.

COURSE V. If circumstances demand it, students who desire to specialize in French will be given an opportunity for study in some restricted field of literature, such as (1) literature of the XVIth century, (2) classic letters and memoirs, (3) contemporary literature, etc.

International Correspondence: Beginning in second year, an opportunity is given to students to carry on, under direction, a correspondence with French students.

German Language and Literature

*MARIE A. K. HOADLEY, *Professor*

BENJAMIN F. BATTIN, *Assistant Professor*

GLENN L. SWIGGETT, *Assistant*

The course of study in this department is designed to give the student (1) a facility in reading German, (2) an ability to speak simple German grammatically, (3) an acquaintance with the social and intellectual development of the Germans, from the earliest times, as revealed by the great exponents of their literature.

In the class-room oral translation into English is discontinued as soon as possible, and expressive reading of the German text is substituted. A course in written translation into German is followed by a course in free German composition, carried on in part by correspondence with Germans.

COURSE I. Thomas's Practical German Grammar, Part I; Grimm's *Märchen* (twelve selections); Eichendorff's *Aus dem Leben eines Taugenichts* (Chapters VII and VIII omitted); E. S. Buchheim's Elementary Prose Composition, Part I; Schiller's *Wilhelm Tell* (first three acts). (4.)

COURSE II. Thomas's Practical German Grammar (reviewed and continued); Schiller's *Wilhelm Tell* (completed); one of Riehl's *Culturgeschichtliche Novellen*; Freytag's *Die Journalisten*; Goethe's *Iphigenia auf Tauris*; E. S. Buchheim's *Elementary Prose Composition* (Parts II and III); German ballads and lyrics (seven to be memorized). (4.)

COURSE III. Schiller's *Wallenstein* (ed. Carruth); Heine's *Harzreise*; Freytag's *Aus dem Staat Friedrichs des Grossen*. Lectures on the history of German Literature. Private reading: Selections from Scherer's *History of German Literature*; Nevins's *Life of Schiller*. (4.)

COURSE IV. Goethe's *Götz von Berlichingen*; Freytag's *Doktor Luther*; Goethe's *Egmont*; Lessing's *Nathan der Weise*.

* On leave of absence.

Lectures on Goethe. German prose composition. Private reading: Sime's *Life of Goethe*; Baumbach's *Der Schwiegersohn*. (4.)

COURSE V. Goethe's *Dichtung und Wahrheit* (six books); Schiller's *Historische Skizzen*; Freytag's *Bilder aus der deutschen Vergangenheit* (selected portions); Goethe's *Torquato Tasso*. Lectures on *Faust*. Private reading: Taylor's *Studies in German Literature*; Francke's *Social Forces in German Literature*; von Scheffel's *Der Trompeter von Säkkingen*. (4.)

Greek Language and Literature

* WILLIAM HYDE APPLETON, *Professor*

ALICE M. ATKINSON, *Assistant*

The following statement is intended to give a general idea of the range of work done in the Greek department. Circumstances may at times require the authors named to be read in a different order, and some substitutions may also be made.

COURSE I. *Herodotus*, Books VI and VII; or *Thucydides*. Study of Persian and Peloponnesian Wars. *Homer*, The *Odyssey*, Books IX, X, XI, XII. Sight reading in other parts of the poem. Required in the Arts Course. (4.)

COURSE II. *Plato*, *Apology* and *Crito* with parts of *Phaedo*. Study of Socrates from Xenophon and Plato. Exercises in Greek Composition based upon texts read. *Æschylus*, *Prometheus*; or *Sophocles*, *Antigone*. Study of the Greek Drama. Required in the Arts Course. (4.)

COURSE III. Greek Oratory: *Lysias*, *Isocrates*, or *Demosthenes*, with a review of Greek History to the death of Alexander. *Euripides*, *Alcestis*, or *Iphigenia among the Taurians*. Elective. (4.)

COURSE IV. *Aristophanes*, one play. *Theocritus*, selected Idylls. Lectures on Greek Literature. A short course in Modern Greek as follows: Gardner's *Short and Easy Modern Greek Grammar*; Modern Greek Ballads; Anna Sewall's *Black Beauty*, as

* On leave of absence for the year.

published in Modern Greek. Newspaper Greek, illustrated by the *Atlantis*. Elective. (4.)

FOR BEGINNERS IN GREEK

COURSE V. The Grammar, with thorough drill on forms, oral and written. *Zenophon*, Anabasis, Book I. Some chapters of the Greek Testament. Required of Freshmen in Arts who have offered no Greek for admission. (4.)

COURSE VI. *Xenophon*, Anabasis, Books II, III, IV. *Homer*, Iliad, Books I, II, III. Sight Reading. Greek Composition. Required of Sophomores in Arts who have offered no Greek for admission. (4.)

History and Political Economy

The group of studies included within this department—History, Politics, Economics, and Social Science—is designed to furnish information necessary for intelligent citizenship, and to provide a preliminary training for those who intend to engage in the practice of law, journalism, business, or the public service. Instruction is given by means of lectures, text-books and collateral reading, and oral and written reports by the students on assigned topics. In the upper classes each student is required to make an independent and detailed study of some assigned or chosen subject; for this purpose the library contains a good working collection of public documents and reports, both Federal and State, in addition to standard treatises. In connection with the course in Social Science, visits are made to neighboring charitable and correctional institutions.

HISTORY AND POLITICS.

WM. I. HULL, *History and Politics*

JESSE H. HOLMES, *History*

COURSE I. *Dr. Holmes*, The Ancient Orient, Greece, Rome. Open to Freshmen. (4.)

COURSE II. *Dr. Holmes*, The Middle Ages, Renaissance, Reformation. Open to Sophomores and Freshmen. (4.)

COURSE III. *Dr. Hull*, England: its History, Government, and Industry. Open to Juniors and Sophomores. (4.)

COURSE IV.* *Dr. Holmes*, The Old Régime and the French Revolution; Europe in the Nineteenth Century, Modern Colonization. Open to Seniors and Juniors. (4.) Offered in 1902-1903.

COURSE V.* *Dr. Hull*, Problems in American History; United States Biography; the Government of Modern States. Open to Seniors and Juniors. (4.) Offered in 1901-1902.

ECONOMICS AND SOCIAL SCIENCE.

WILLIAM I. HULL, *Professor*

COURSE I. Elements of Economics. Industrial Problems of To-day (including Labor Organizations; Strikes, Lock-outs, and Arbitration; Immigration; Coöperation and Profit-Sharing; Employers' Care for Employees; Laborers' Insurance; The Unemployed; The Eight-Hour Day; Women and Children in Industry; Monopolies and Trusts). Open to Sophomores and Juniors. (4.)

COURSE II.† Taxation, Protection and Free Trade. Money and Bimetallism. Banking. Offered in 1901-1902. Open to Juniors and Seniors. (4.)

COURSE III.† Socialism: its History and Claims. Industrial Reformers of the Nineteenth Century. Municipal Problems. Offered in 1902-1903. Open to Juniors and Seniors. (4.)

COURSE IV. Elements of Sociology. Social Problems of To-day (including Crime and Punishment; The Insane and Feeble-Minded; Pauperism and Charity; Tenement Houses; Womanhood and the Family; The Children of the Poor; Social Settlements; Intemperance and Methods of Temperance Reform; Salvation Army's Social Work; The Negro and the Indian; War and Peace). Open to Seniors, and to Juniors who have had Course I. (4.)

* Courses IV and V are offered in alternate years.

† Courses II and III are offered in alternate years.

114206-

Latin Language and Literature

FERRIS W. PRICE, *Professor*

COURSE I. Horace, *Odes*; Cicero, *Letters* (selections); Latin Composition based on Cicero's *Letters*; Mythology. Required in the Arts Course. (4.)

COURSE II. Horace, *Satires* and *Epistles*; Livy, Books I, XXI, XXII; History of Latin Literature, lectures with illustrative passages from the most important authors. Required in the Arts Course. (4.)

COURSE III. Inscriptions and other remains of early Latin; Plautus, *Trinummus* and *Captivi*; Terence, *Phormio*; Cicero, one or more of the philosophical essays; Hymns and other late Latin. Required in the Arts Course. (4.)

COURSE IV. Catullus, a brief course; Tacitus, *Agricola* and *Germania* (in part). The second semester is devoted to a comprehensive study of Virgil, with special attention to the *Georgics*, and to the *Æneid*, Books VII-XII. Elective. (4.)

COURSE V. Cicero, selections from the orations; Ovid, portions of the *Metamorphoses*; exercises in Latin Composition based on Cicero's oration, *Pro Roscio Amerino*. Elective for all students sufficiently prepared. (4.)

COURSE VI. A rapid study of the essentials of Latin grammar, followed by considerable carefully graded reading; emphasis is laid upon the most important features of the Latin language and Roman life. This beginners' Course is required of Juniors or Seniors in the Letters Course who offered no Latin for admission to College and is elective for other Seniors and Juniors.

Sight-reading and other collateral work in all the Courses.

Mathematics and Astronomy

SUSAN J. CUNNINGHAM, *Professor*

THOMAS A. CLARK, *Assistant*

COURSE I. (a) Solid Geometry (Phillips and Fisher); Plane Trigonometry (Loney). Required of all Freshmen, unless presented for entrance. (4.)

(b) Algebra (C. Smith's Treatise, Chapters XIX-XXXII, with omissions). Required of Freshmen in Science and Engineering, elective for other students. (2.)

COURSE II. Conic Sections (C. Smith); Differential Calculus (Edwards). Elective in the Arts and Letters Courses, required in the Engineering Course; for Science Course, see p. 61. (4.)

COURSE III. Integral Calculus (Edwards); Differential Equations. Required in Engineering Course; for Science Course, see p. 61. (4.)

The following special Elective Courses are offered:

1. Modern Pure Geometry. An advanced course. Subjects treated: Harmonic Ranges and Pencils, the theories of Involution, Perspective, Similar Figures, Reciprocation, Inversion, etc.

2. Higher Algebra, beginning with the Theory of Equations (Burnside and Panton) and continuing with Invariants, etc.

3. Plane Analytic Geometry, including Higher Plane Curves. The course will be a continuation of Conic Sections and will be based on Clebsch-Lindemann's Geometrie.

4. Solid Analytic Geometry (Charles Smith).

5. Curve Tracing.

6. Trigonometric Series, Spherical Harmonics, etc. (Byerly).

7. Elementary Quaternions (Kelland and Tait).

8. Advanced Trigonometry (Loney).

9. Young's General Astronomy.

10. Chauvenet's Spherical and Practical Astronomy.

11. Theoretical Astronomy (Orbit Determination).

Pedagogy

PRESIDENT BIRDSALL

This course will be offered in 1901-1902, and will be given in alternate years thereafter. It is elective for members of the Junior and Senior Classes who are preparing to teach. The work consists of a careful study of the history of educational

progress from the time of Comenius; lectures on the history of education in America and on the present school systems; a study of Method (as it is presented in the works of De Garmo and McMurry, and it is to be observed in contemporary schools) and of the Psychological Foundations of Education (as presented in the work of William T. Harris); a special study of the doctrines of Froebel and Herbart. The course in Psychology (see p. 55) is closely related to that in Pedagogy, and may be regarded as constituting a part of it. (4.)

Physical Training

FOR YOUNG MEN

W. S. CUMMINGS, M. D., *Director*

FOR YOUNG WOMEN

MARY V. MITCHELL GREEN, M. D., *Director*

SARAH BROOKE FARQUHAR, *Instructor*

The system of Physical Training is based upon thorough and careful examination of each student. The record of measurements and other tests affords a means of noting progressive development, and is, in large part, the basis upon which exercises are prescribed. Particular attention is given to all individuals whose physical development is below the normal, special work being prescribed for such, in order to produce, as far as possible, an evenly developed and healthy organism.

Two periods per week of Gymnasium work is required of all Freshmen and Sophomores, and they are urged to continue their training throughout the College course.

All athletic sports are under the immediate supervision of the Directors, and only those students who are in proper physical condition are allowed to participate. Great care is also taken to keep games and athletic contests within such limits as will make them only a proper means of exercise and recreation, and thus a real assistance to the work of the College.

Physics

GEORGE A. HOADLEY, *Professor*

The Physical Laboratory is provided with apparatus for determinations in the mechanics of solids and fluids, in heat, sound, light, electricity, and magnetism; and with apparatus suitable for lecture experiments. Most of this has been selected with care from the best American and foreign makers; some is of home manufacture. The co-operation of the Engineering Department and the increasing skill of our students enable us to make each year a larger proportion for regular use in the Laboratory. It is our aim to afford students continued opportunities for instruction in the principles of construction of ordinary and special apparatus. Power for running dynamos and for other purposes is supplied.

FOR STUDENTS IN ARTS AND LETTERS

COURSE I. General Physics. This course consists of the investigation of the general laws of Physics and the consideration of their practical application. The work is done by lectures and recitations, accompanied by experimental verification of the laws discussed. Open to Sophomores. (4.)

COURSE II. Heat, Magnetism, Electricity, and Light. Open to Juniors. (4.)

FOR STUDENTS IN SCIENCE AND ENGINEERING

These courses are intended to be pre-eminently practical, consisting largely of laboratory work in the investigation and verification of the laws of Physics. The recitation work covers the topics treated in Ganot's *Physics*, or other text-book of equal rank, and is supplemented by lectures on the various branches of the subject.

COURSE III. Applied Mechanics and Dynamics. Gases, Liquids, and Sound. Open to Sophomores. (4.)

COURSE IV. Heat, Magnetism, Electricity, and Light. Open to Juniors. (4.)

COURSE V. Practical Measurements in Magnetism and

Electricity. The work of this course is largely experimental, the design being to familiarize the student with the practice and methods of measurement. Open to Juniors. (2.)

COURSE VI. Applied Electricity, supplementing Course V by the practical study of the application of the electric current to the telephone, telegraph, dynamo, electric light, motor, transmission of power, etc. Work in the manufacture and use of these various appliances, as well as in the measurement of electrical quantities, is accompanied by text-book work in Thompson's *Dynamo Electric Machinery*, and by reading and class-discussion of current electrical journals. Visits to the electrical plants of the neighboring villages and cities are made at convenient times, for the purpose of studying the machinery in actual use. Open to Seniors. (8=4.)

Psychology and Philosophy

SPENCER TROTTER, *Brain Physiology*

JESSE H. HOLMES, *Psychology and Philosophy*

Psychology.—This course is introduced by a study of Brain Physiology and of the organs of special sense by means of text-book, models, and dissections. Then follows an inquiry into the conditions of states of consciousness, with James's *Psychology* (Briefer Course) as a text-book. (4.) First Semester.

Philosophy.—The work in Philosophy is a historical study of the development of human thought, using Weber's text-book as a basis. Each important system is studied at least in outline, and especial attention is given to the ethical bearings of the more prominent. (4.) Second Semester.

Courses for the Bachelor's Degree

Every candidate for the Bachelor's Degree will be required to complete one of the following four Regular Courses: Arts, Letters, Science, and Engineering. They have been arranged with a view of making them as nearly as possible equivalent in amount of work involved, and each is intended to insure liberal culture, while it provides opportunity for extended study in one chosen field.

THE COURSE IN ARTS.—The characteristic feature of this course is the study of Classical Antiquity, including the language and literature of the Greeks and Romans, with their art, philosophy, religion, and political and social history. While this course affords that broad culture which should be the foundation of any subsequent career, it may be made to afford special preparation for law or journalism by including electives in History and Economics; or it may be directed toward the study of medicine by choosing electives in Biology and Chemistry. This course leads to the degree of *Bachelor of Arts*.

THE COURSE IN LETTERS.—This course, as the name indicates, is distinctly a culture course, the language and literature of the great modern nations—the English-speaking peoples, France and Germany—being the central feature. Latin, always a desirable element in general culture, may be taken throughout the course; increased time is given to History and Economics. A judicious choice of electives will afford special preparation for journalism, law, teaching, and other professions. This course leads to the degree of *Bachelor of Letters*.

THE COURSE IN SCIENCE.—While this course provides for advanced study in Mathematics, and for an introduction to both French and German, its characteristic feature is extended work in Physics, Chemistry, and Biology. A choice of suitable electives will secure special preparation for the study of medicine, or

for engaging in manufacturing or commercial pursuits. This course leads to the degree of *Bachelor of Science*.

THE COURSE IN ENGINEERING.—This course offers a training adapted to the needs of civil, mechanical, and electrical engineers, as well as of the large class who are to be concerned with the material interests of the country, with manufacturing, with industrial pursuits, or with any of the many other occupations allied to engineering. It embraces liberal and technical instruction in the mathematical, physical, and graphical sciences, and their applications, in practical field engineering, in the arts of design and construction, in the use of tools, materials, and machinery, and in processes. This course leads to the degree of *Bachelor of Science in Engineering*.

ELECTIVE STUDIES.—The following studies, required with few exceptions in at least one of the Courses, are offered as elective in the others. The freedom of election will sometimes be restricted by the exigencies of the College programme:

Astronomy,	Geology,
Biblical Literature,	German,
Biology,	Greek,
Chemistry,	History,
Drawing and Painting,	Latin,
History of Painting,	Mathematics,
Economics,	Pedagogy,
Elocution,	Physics,
English,	Social Science,
French,	World Literature.

Irregular Courses of Study may be pursued only in special cases and by approval of the Faculty. In the absence of definite arrangement in advance, students will be required to take the studies of one of the irregular Courses.

Partial Courses of Study.—A limited number of teachers and other persons of sufficiently mature age, who may wish to improve themselves in particular studies, will be received without examination, and will be allowed to elect, in any of the regular

classes, such work as they can pursue to advantage. They should in all cases correspond in advance with the President.

Preparatory Medical Course.—In the departments of Biology, Chemistry, and Physics, work is planned to prepare students for the study of medicine. Several leading Medical Schools of Philadelphia and elsewhere will admit to the second year of their courses students who, with their diplomas, present satisfactory certificates of undergraduate work equivalent to the first year of the medical course. Students who desire to take advantage of this arrangement should confer with the professors in charge of the several science departments, not later than the end of their Sophomore year.

The Course in Arts

For list of Electives, see p. 57.

Freshman Year

FIRST SEMESTER.	PERIODS.	SECOND SEMESTER.	PERIODS.
Greek,	4	Greek,	4
Latin,	4	Latin,	4
Mathematics or Elective,	4	Mathematics or Elective,	4
Biology or History,	4	Biology or History,	4
Bible Literature, 1; Composition, 1; Elocution, 2.			

Sophomore Year

Greek,	4	Greek,	4
Latin,	4	Latin,	4
One of the following:		One of the following:	
Mathematics, English, }	4	Mathematics, English, }	4
French, German, }	4	French, German, }	4
History or Physics or Economics,	4	History or Physics or Economics,	4
Bible Literature, 1; Composition, 1; Elocution, 2.			

Junior Year

Greek, or Elective,	4	Greek, or Elective,	4
Latin,	4	Latin,	4
Elective,	4	Elective,	4
Elective,	4	Elective,	4
Elective,	2	Elective,	2
Themes, 1.			

Senior Year

Greek, or Elective,	4	Greek, or Elective,	4
Psychology,	4	Philosophy,	4
Elective,	4	Elective,	4
Elective,	4	Elective,	4
Elective,	2	Elective,	2
Graduating Thesis.			

Students who present Elementary and Advanced *Greek* for admission (see pp. 30-31), will be required to continue the study for two years in College, and may elect it for the remaining two years. To those who present no Greek for admission, an opportunity is offered to begin the language in College, but they must continue it during the entire four years.

If the *Mathematics* numbered 14 (p. 31) has not been offered for admission, *Mathematics* must be taken in the Freshman year; if it has been offered, the Elective substituted for it must be approved by the student's Adviser.

One year of *History*, one year of *Science*, and one semester of *Economics* are required for graduation.

Two years of *Modern Language* must be taken in College, Course II in either French or German being completed.

The Course in Letters

For list of Electives, see p. 57.

Freshman Year

FIRST SEMESTER. PERIODS.	SECOND SEMESTER. PERIODS.
English,4	English,4
French or German,4	French or German,4
Mathematics or Elective,4	Mathematics or Elective,4
Biology or History or Latin, ..4	Biology or History or Latin, ..4
Bible Literature, 1; Composition, 1; Elocution, 2.	

Sophomore Year

English,4	English,4
French or German,4	French or German,4
Two of the following:	
History,4	History,4
Economics,4	Economics,4
Latin,4	Latin,4
Mathematics,4	Mathematics,4
Physics,4	Physics,4
Bible Literature, 1; Composition, 1; Elocution, 2.	

Junior Year

English,4	English,4
French or German,4	French or German,4
Elective,4	Elective,4
Elective,4	Elective,4
Elective,4	Elective,4
Themes, 1.	

Senior Year

French or German,4	French or German,4
Psychology,4	Philosophy,4
Elective,4	Elective,4
Elective,4	Elective,4
Elective,4	Elective,4
Graduating Thesis.	

Students are required to take at least two years of both *French* and *German* in College, completing Course IV in either language.

If the *Mathematics* numbered 14 (p. 31) has not been offered for admission, *Mathematics* must be taken in Freshman year; if it has been offered, the Elective substituted must be approved by the student's Adviser.

Two years of *History*, one year of *Science*, and one year of *Economics* are required for graduation.

Juniors and Seniors who have presented no *Latin* for admission are required to complete Course VI in Latin (p. 51).

The Course in Science

For list of Electives, see p. 57.

Freshman Year

FIRST SEMESTER. PERIODS.	SECOND SEMESTER. PERIODS.
Biology,4	Biology,4
Chemistry,4	Chemistry,6=4
French or German,4	French or German,4
Mathematics or Elective,4	Mathematics or Elective,4
Mathematics (Algebra),2	Mathematics (Algebra),2
Bible Literature, 1; Composition, 1; Elocution, 2.	

Sophomore Year

Chemistry,8=4	Chemistry,8=4
Geology,2	Geology,2
Physics,4	Physics,4
French or German,4	French or German,4
Mathematics or English,4	Mathematics or English,4
Bible Literature, 1; Composition, 1; Elocution, 2.	

Junior Year

Biology,8 4	Biology,8=4
Physics,4	Physics,4
French or German,4	French or German,4
Mathematics or Elective,4	Elective,4
Chemistry or Elective,4	Chemistry or Elective,4
Themes, 1.	

Senior Year

Biology or Chemistry or Physics,8=4	Biology or Chemistry or Physics,8=4
Psychology,4	Philosophy,4
Elective,4	Elective,4
Elective,4	Elective,4
Elective,4	Elective,4
Graduating Thesis.	

Physics, Chemistry, Biology: students must take all that is offered in one of these sciences, and two years' work in each of the other two.

One year of *French* and one year of *German* must be taken in College, Course II in German being completed.

If the *Mathematics* numbered 14 (p. 31) has not been offered for admission, *Mathematics* (Solid Geometry and Plane Trigonometry—4 periods) must be taken in Freshman year; if it has been offered, the Elective substituted must be approved by the student's Adviser.

Students choosing *Physics* as their major subject must take *Mathematics* until the middle of the Junior year (through Calculus); those choosing *Chemistry* as their major subject must take *Mathematics*, two periods per week, through the Sophomore year (through Conic Sections).

The Course in Engineering

For list of Electives, see p. 57.

Freshman Year

FIRST SEMESTER.	PERIODS.
Drawing,	6=2
Wood Working,	6=2
Mathematics or Elective,	4
Mathematics (Algebra),	2
Chemistry,	4
English,	4

SECOND SEMESTER.	PERIODS.
Drawing,	6=2
Forging,	6=2
Mathematics or Elective,	4
Mathematics (Algebra),	2
Chemistry,	4
English,	4

Bible Literature, I; Composition, I.
Assigned work for Summer vacation.

Sophomore Year

Descriptive Geometry,	5=3
Machine Practice,	6=2
Mathematics,	4
Physics,	4
Chemistry,	8=4
Elocution or English,	2
Geology,	2
Bible Literature,	1

Surveying,	2
Machine Practice,	6=2
Mathematics,	4
Physics,	4
Chemistry,	8=4
Elocution or English,	2
Geology,	2
Graphical Statics,	3=1

Assigned work for Summer vacation.

Junior Year

Mechanics of Materials,	4
Field Practice and Drawing,	3=1
Machine Practice,	6=2
Physics,	4
Applied Electricity,	2
Mathematics,	4
Elective,	4

Thermodynamics,	4
Laboratory Practice and Draw- ing,	3=1
Machine Practice,	6=2
Physics,	4
Applied Electricity,	2
Mathematics,	4
Elective,	4

Assigned work for Summer Vacation.

Senior Year

Railway Engineering,	5
Laboratory and Field Prac- tice,	6=2
Theory of Errors,	2
Economics,	4
Drawing,	4=2
Elective,	4
Elective,	2

Hydraulics,	4
Structural Design,	10=4
Power Plants,	2
Economics,	4
Elective,	4
Elective,	2

Graduating Thesis.

If the *Mathematics* numbered 14 (p. 31) has not been offered for admission, *Mathematics* (Solid Geometry and Plane Trigonometry—4 periods) must be taken in Freshman year; if it has been offered, the Elective substituted must be approved by the student's Adviser.

Graduation and Degrees

The Degree of Bachelor

The degrees of Bachelor of Arts, Bachelor of Letters, Bachelor of Science, and Bachelor of Science in Engineering are conferred on the completion of the corresponding Courses.

The Degree of Master

All candidates for the Master's Degree (A. M., M. L., and M. S.) must have taken the corresponding Bachelor's Degree at this College. They are required to pursue a course of study at Swarthmore, or elsewhere, under the direction of the Faculty, and to pass examination on the same. Graduates residing at the College may reasonably hope to complete the work in one year; non-residents, engaged in other work, must devote to it not less than two years. Courses of study will be assigned to candidates upon application to the Faculty stating the subject, or subjects, which they desire to pursue and upon payment of \$5 as a registration fee.

After the Commencement of 1901, an additional fee of \$20 must be paid when the Degree is conferred.

The examinations for the Degrees will be both oral and written, and will be conducted by a committee of the Faculty, upon whose report the Faculty will decide upon the fitness of the candidate for the Degree. An extended thesis, bearing upon some part of the work assigned, will be required in all cases. The candidate should apply to the Registrar for a printed statement of the requirements.

The Engineering Degrees

The Degrees of Civil Engineer (C.E.), Mechanical Engineer (M.E.), and Electrical Engineer (E.E.) will be conferred upon Bachelors of Science in Engineering who shall have been engaged for not less than three years in successful professional practice in

positions of responsibility, and who shall pursue prescribed courses of reading and present acceptable theses upon subjects pertaining to some branch of Engineering. Candidates for these Degrees should apply to the Registrar for a statement of the requirements.

The same fees are charged as for the Master's Degree.

Honorary Degrees Conferred

1888

WILLIAM HYDE APPLETON, Ph.D. (A.B., Harvard, 1864; A.M., LL.B., Harvard, 1869; Acting President and President of Swarthmore College, 1889-1891), Professor of Greek and of Early English.

SUSAN J. CUNNINGHAM, Sc.D., Professor of Mathematics and Astronomy.

1889

ARTHUR BEARDSLEY, Ph.D. (C.E., Rensselaer Polytechnic Institute, 1867; Professor of Engineering and Director of Mechanic Arts, 1872-1898), Emeritus Professor of Engineering and Librarian of Friends' Historical Library.

ISAAC SHARPLESS, LL.D. (B.S., Harvard, 1873; Sc.D., Univ. of Pa., 1883), President of Haverford College.

1890

OLIVIA RODHAM, A.B. (Assistant Librarian and Instructor in Botany, 1881-1888).

1897

ELIZABETH POWELL BOND, A.M., Dean.

Degrees Conferred in 1900

Master of Arts

ELIZABETH BOOTH MILLER, A. B., Swarthmore, 1895.

Civil Engineer

HOWARD WHITE, JR., B. S., Swarthmore, 1895.

Master of Letters

ELLWOOD C. PARRY, B. L., Swarthmore, 1897.

Baccalaureates

BIRD T. BALDWIN, B.S.,	Moorestown, N. J.
LUCY BANCROFT, A.B.,	Wilmington, Del.
GEORGE L. BEAN, B.S.,	Scottdale, Pa.
A. MARY BROWN, B.L.,	Cornwall, N. Y.
ROBERT L. BROWNFIELD, JR., B.S.,	Philadelphia, Pa.
FLORENCE E. CHRISTY, B.L.,	Bloomfield, Ont., Can.
CAROLINE F. COMLY, B.L.,	Philadelphia, Pa.
PAUL DARLINGTON, B.S.,	Darling, Pa.
MARGARET EVES, B.L.,	Philadelphia, Pa.
ROGER B. FARQUHAR, JR., B.S.,	New York, N. Y.
ANNA GILLINGHAM, A. B.,	Cambridge, Mass.
JOSEPH C. HAINES, B.L.,	Mickleton, N. J.
EDMUND A. HARVEY, A.B.,	Brandywine Summit, Pa.
MARY S. HAVILAND, B.L.,	Cambridge, Mass.
CAROLINE L. HAWKE, A.B.,	Swarthmore, Pa.
ANNA K. HIMES, B.L.,	New Oxford, Pa.
ANNA C. HOLMES, B.L.,	Philadelphia, Pa.
OTLEY E. JACKSON, B.S.,	Nine Points, Pa.
GEORGE M. LAMB, JR., B.S.,	Baltimore, Md.
ANNA H. LIPPINCOTT, B.L.,	Riverton, N. J.
ALICE M. LUKENS, B.S.,	Swarthmore, Pa.
JESSIE M. LUKENS, B.L.,	Langhorne, Pa.
EDNA M. MILLER, B.L.,	Lancaster, Pa.
E. MAE MYERS, B.L.,	Kennett Square, Pa.
GEORGIA C. MYERS, B.L.,	Langhorne, Pa.
KATHARINE PFEIFFER, B.L.,	Camden, N. J.
MARGERY PYLE, A.B.,	London Grove, Pa.
HELEN T. SULLIVAN, B.L.,	Moorestown, N. J.
WILLIAM H. THATCHER, B.S.,	Wilmington, Del.
J. ETHEL THOMPSON, B.L.,	Baltimore, Md.

Record of Alumni

In place of the list of Graduates printed hitherto in the Annual Catalogue, it is proposed to publish a Quinquennial Record of Alumni. The first issue will be in 1905.

Holders of the Joshua Lippincott Fellowship

1893-1894

T. ATKINSON JENKINS, A. B., '87; Ph. D., Johns Hopkins, '94.
BENJAMIN F. BATTIN, A. B., '92; studied in Berlin; Ph. D., Jena, 1900.

1894-1895

DAVID B. RUSHMORE, B. S., '94; M. E., Cornell, '95; C. E., Swarthmore, '97.

1895-1896

HOWARD WHITE, JR., B. S., '95; M. S., Michigan, '96; C. E., Swarthmore, 1900.

1896-1897; 1897-1898

JOHN W. GREGG, B. L., '94; A. M., Cornell, '99.

1898-1899

ELLWOOD C. PARRY, B. L. '97; studied in Berlin; M. L., Swarthmore, 1900.

1899-1900; 1900-1901

JOHN E. WELLS, B. L., '96; M. L., '99; A. M., Columbia, 1900; studying in Columbia University.

Holders of the Lucretia Mott Fellowship

1895-1896

HELEN B. SMITH, A. B., '95; studied in Oxford University, England; A. M., Swarthmore, '99.

1896-1897

MARY S. McDOWELL, A. B., '96; studied in Oxford University, England.

1897-1898

SARAH BANCROFT CLARK, B. S., '97; studied in Newnham College, Cambridge, England.

1898-1899

EDNA H. RICHARDS, B. L., '98; studied in Berlin, Germany.

1899-1900

MARY E. SEAMAN, A. B., '99; studied in Newnham College, Cambridge, England.

1900-1901

ANNA GILLINGHAM, A. B., 1900; studying in Radcliffe College, Cambridge, Mass.

The Alumni Association

The Alumni Association was organized Fifth Month 8, 1875, and incorporated First Month 16, 1882. Its object is "to promote union and good feeling among the Alumni, and to advance in all proper ways the interests of Swarthmore College." All graduates are *ipso facto* members of the Association. The annual meeting and banquet are held in the afternoon and evening of Commencement Day.

Officers for 1900-1901

President

WILLIAM G. UNDERWOOD, '87, Philadelphia, Pa.

Vice-Presidents

ALBERT R. LAWTON, '80, Chappaqua, N. Y.

CAROLINE R. GASTON, '90, Philadelphia, Pa.

DANIEL UNDERHILL, '94, Jericho, N. Y.

Secretary

EMMA GAWTHROP HAYES, '88, Swarthmore, Pa.

Treasurer

CHARLES A. BUNTING, '83, Swarthmore, Pa.

Board of Directors

Term Expires Sixth Month, 1901

GERRIT E. H. WEAVER, '82, Philadelphia, Pa.

SARAH BANCROFT CLARK, '97, Street, Somerset, England.

HELEN B. SMITH, '95, Media, Pa.

Term Expires Sixth Month, 1902

T. ATKINSON JENKINS, '87, Swarthmore, Pa.

MORRIS L. CLOTHIER, '90, Philadelphia, Pa.

ANNIE HILLBORN, '92, Swarthmore, Pa.

Committee on Trusts, Endowments, and Scholarships

EDMUND WEBSTER,

1156 South Broad Street, Philadelphia, Pa.

EDWARD H. OGDEN,

314 Vine Street, Philadelphia, Pa.

EMMOR ROBERTS,

Fellowship, N. J.

SUSAN W. LIPPINCOTT,

Cinnaminson, N. J.

JOHN T. WILLETS,

303 Pearl Street, New York, N. Y.

EMMA C. BANCROFT, *Secretary*.

Wilmington, Del.

